Wireless 802.11n Broadband Router 523967

User Manual

INT-523967-UM-0208-1

Federal Communication Commission Interference Statement

FCC Part 15

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

FCC Caution

This equipment must be installed and operated in accordance with provided instructions and a minimum 20 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL of March 9, 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

EU Countries Intended for Use

The ETSI version of this device is intended for home and office use in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

The ETSI version of this device is also authorized for use in EFTA member states: Iceland, Liechtenstein, Norway, and Switzerland.

EU Countries Not intended for use

None.

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Chapter I: Product Information

1-1 Introduction and safety information

Thank you for purchasing the Wireless 802.11n Broadband Router.
The INTELLINET NETWORK SOLUTIONS Wireless 802.11n Broadband Router is the latest in wireless networking. Taking advantage of the Wireless-N (Draft 802.11n) technology, a wireless network can now see greatly enhanced network speeds and an increase in overall transmission distance.
The Broadband Router serves multiple purposes — an access point for your wireless network, a 4-port router for hard-wiring Ethernet devices — and brings it all together so that the devices can access a high-speed Internet connection.

The new Wireless-N (Draft 802.11n) standard has dramatically increased the overall performance of a wireless network. With speeds up to 300 Mbps and a coverage distance up to 600 m, the new Wireless-N technology greatly surpasses that of 802.11g.

Product Features:

- Up to 300 Mbps network link speed
- Supports WMM function to meet the multi-media data bandwidth requirement
- Supports advanced 2T3R MIMO technology, enhancing the throughput and coverage range significantly
- Supports Wi-Fi Protected Setup (WPS)
- Supports WEP and WPA/WPA2 (TKIP and AES) data encryption
- Integrated 10/100 Mbps LAN switch with Auto MDI/MDI-X support
- Easy Internet setup through WAN connection wizard
- DHCP server assigns IP addresses for all LAN users
- DHCP Server supports static lease management
- Supports virtual server, port forwarding and DMZ (demilitarized zone)
- Supports DDNS (dynamic DNS)
- Supports UPNP (Universal Plug and Play)
- Integrated anti-DOS firewall

- QoS (Quality of Service) bandwidth management
- VPN Pass Through (PPTP)
- Up to 300 Mbps network link speed
- Advanced 2T3R MIMO technology for enhanced throughput and coverage
- Supports Wi-Fi Protected Setup (WPS)
- Supports WMM function to meet the multi-media data bandwidth requirement
- Integrated anti-DOS firewall
- QoS (Quality of Service) bandwidth management
- Integrated 10/100 Mbps LAN switch with Auto MDI/MDI-X support
- Complies with 2.4 GHz Draft IEEE 802.11n standard and is backward compatible with IEEE 802.11g/b standards
- Use INTELLINET NETWORK SOLUTIONS Wireless N Draft 2.0 WLAN adapters and cards for best compatibility and performance
- Easy installation through Web-based user interface
- System Status
- Security Log
- Firmware Upgradeable

1-2 Safety Information

In order to keep the safety of users and your properties, follow the safety instructions below:

1. This router is designed for indoor use only; DO NOT place this router outdoors.

2. DO NOT put this router at or near hot or humid places.

3. DO NOT pull any connected cable with force; disconnect it from the router first.

4. If you want to place this router at heights or hang on the wall, please make sure the router is firmly secured to prevent if from falling down causing damage to the router and possibly injuries to persons.

5. Accessories of this router, like antenna and power supply, are dangerous to small children under 3 years old. They may put the small parts in their nose or month and it could cause serious harm to them. KEEP THIS ROUTER OUT THE REACH OF CHILDREN!

6. The router will become hot when being used for long time (***This is normal and is not a malfunction).*** Keep the router away from paper, cloth, or other flammable materials.

7. There's no user-serviceable part inside the router. If you found that the router is not working properly, please contact your dealer (place of purchase) and ask for help. DO NOT disassemble the router. Doing so will void the warranty.

8. If the router falls into water when it's powered, DO NOT use your hand to pick it up. Switch the electrical power off before you do anything, or contact an experienced technician for help.

9. If you smell something strange, or even see some smoke coming out from the router or power supply, remove the power supply or switch the electrical power off immediately, and call the dealer for help.

1-3 System Requirements

- Internet connection, provided by xDSL or cable modem with an RJ-45 Ethernet port.
- Computer or network devices with wired or wireless network interface card.
- Web browser (Firefox 1.5 or above, *Microsoft Internet Explorer 4.0 or above, Netscape Navigator 4.7 or above, Opera Web browser, or Safari Web browser).*
- An available AC power socket (100 – 240V, 50/60Hz)

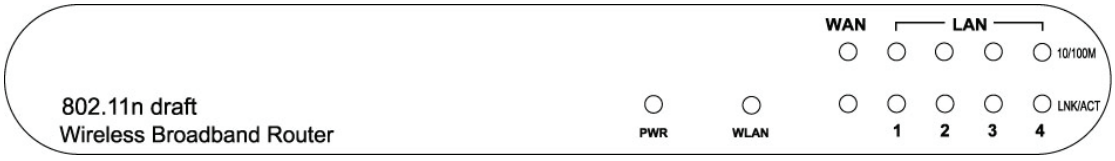
1-4 Package Contents

Before you start to use this router, check if there's anything missing in the package, and contact your dealer for assistance:

- ▫ Broadband router (main body, 1 pcs)…… 1
- ▫ Quick installation guide (1 pcs) …… 2
- ▫ User manual CDROM (1 pcs) …….. 3
- ▫ A/C power adapter (1 pcs) ……..... 4
- ▫ Ethernet Cat5 RJ-45 cable: 1.0 m (3 ft.) ……..... 4

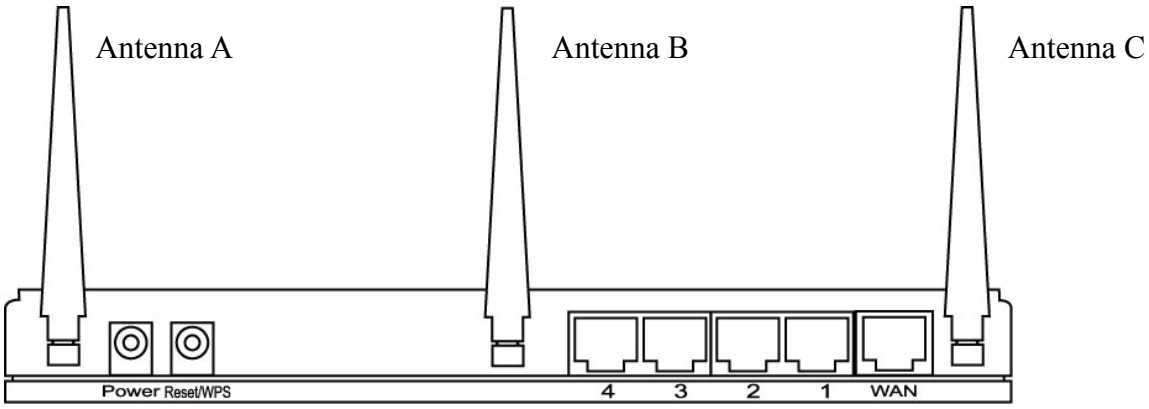
1-5 Wireless broadband router hardware description

Front Panel



LED Name	Light Status	Description
PWR	ON	Router is switched on and correctly powered
WLAN	On	Wireless network is switched on or WPS mode is on.
	Off	Wireless network is switched off
	Flashing	Wireless LAN activity (transferring or receiving data).
WAN 10/100M	On	WAN port (Internet) is running at 100Mbps
	Off	WAN port (Internet) is running at 10Mbps
	Flashing	WAN activity (transferring or receiving data)
WAN LNK/ACT	On	WAN port is connected
	Off	WAN port is not connected
	Flashing	WAN activity (transferring or receiving data)
LAN 10/100M	On	LAN port is running at 100Mbps
	Off	LAN port is running at 10Mbps
LAN LNK/ACT	On	LAN port is connected
	Off	LAN port is not connected
	Flashing	LAN activity (transferring or receiving data)

Back Panel



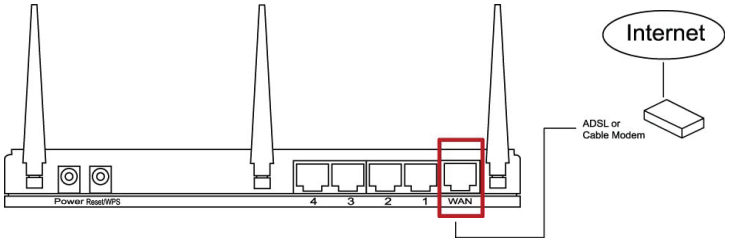
Item Name	Description
Antennas A to C	3dBi dipole antennas.
Power	Power connector, connects to A/C power adapter.
Reset / WPS	Reset the router to factory default settings (clear all settings) or start WPS function. Press this button and hold for 10 seconds to restore all settings to factory defaults, and press this button for less than 5 seconds to start WPS function.
1 - 4	Local Area Network (LAN) ports 1 to 4.
WAN	Wide Area Network (WAN / Internet) port.

Chapter II: System and Network Setup

2-1 Connecting the Wireless Broadband Router

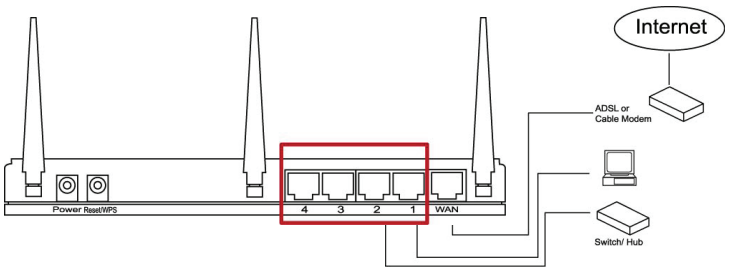
This chapter explains how to connect the router to your computers and how to access the Internet.

1. Connect your DSL or cable modem to the WAN port of router using the provided RJ45 Ethernet cable.

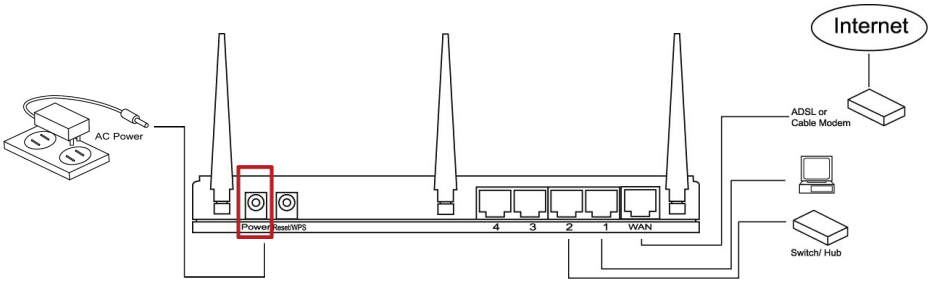


Standard modems provided by Internet Service Providers (also referred to as ISPs) come with at least one LAN or Ethernet port. This is the port which you need to connect to the WAN port of the INTELLINET NETWORK SOLUTIONS Wireless N Broadband Router.

2. Connect all your computers, network devices (network-enabled consumer devices other than computers, like game consoles, network media players, network storage units or LAN switches) to the LAN ports of the router.



3. Connect the A/C power adapter to the wall socket, and then connect it to the 'Power' socket of the router.

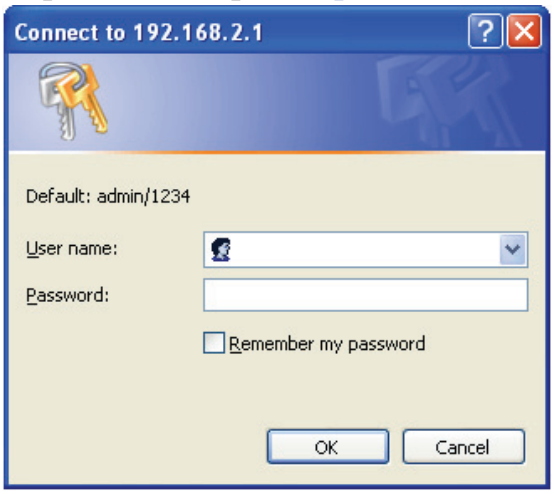


4. Check all LEDs on the front panel.
   The 'PWR' LED should be steadily on, WAN and LAN LEDs should be on if the computer or network device connected to the respective port of the router is powered on and correctly connected.

   If the PWD LED is not on, or any LED you expected to be on is not on, please recheck the cabling, or go to chapter ***'4-2 Troubleshooting'*** for possible reasons and solutions.

2-2 Connecting to the Wireless Broadband Router

Before you can connect to the router and start configuration procedures, your computer must be able to get an IP address automatically (use dynamic IP address). This is the default setup for any standard Windows computer, and it normally is not required to make any changes.
Connect your computer to one of the LAN ports of the router, then activate the network connection. Start the Web browser; e.g., MS Internet Explorer, and open http://192.168.2.1.



A login window opens up:

Enter 'admin' as the username and '1234' as the password.

If this works, you can skip the next pages and go directly to chapter "2-3 Using 'Quick Setup'".

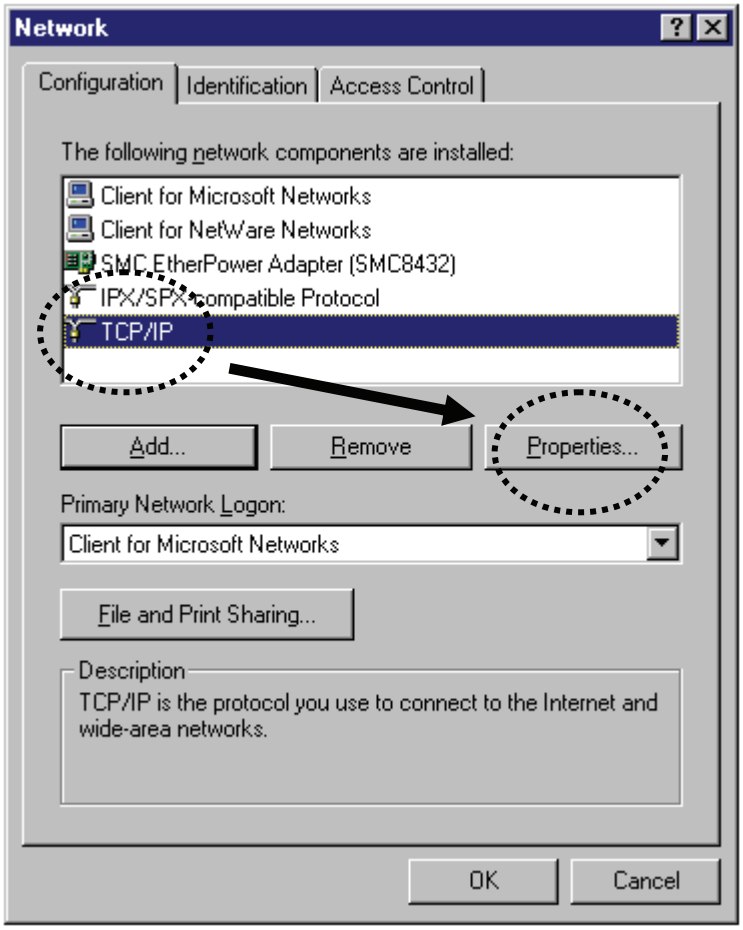
Only if the steps above are not successful, or if you know that your computer has a static IP address setup, do you need to follow the instructions below:

If the operating system of your computer is….

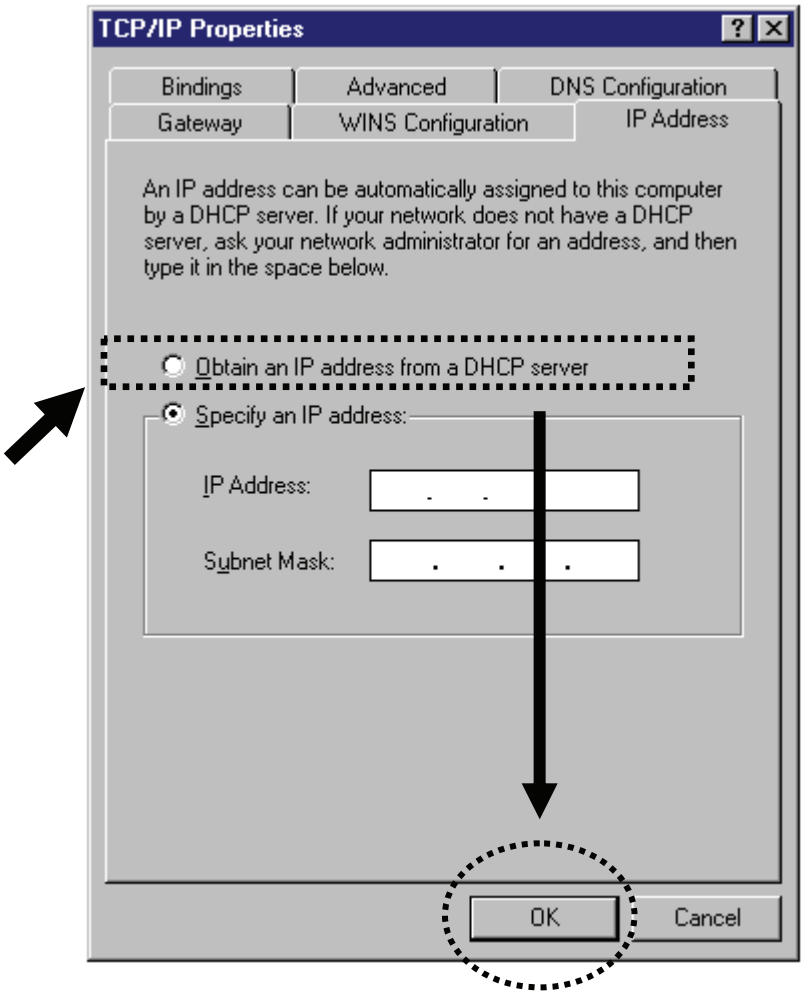
Windows 95/98/Me	**- go to section 2-2-1**
Windows 2000	**- go to section 2-2-2**
Windows XP	**- go to section 2-2-3**
Windows Vista	**- go to section 2-2-4**

2-2-1 Windows 95/98/Me IP address setup:

1. Click 'Start' button, then click control panel. Double-click the ***Network*** icon, and the ***Network*** window will appear. Select 'TCP/IP', then click 'Properties'.

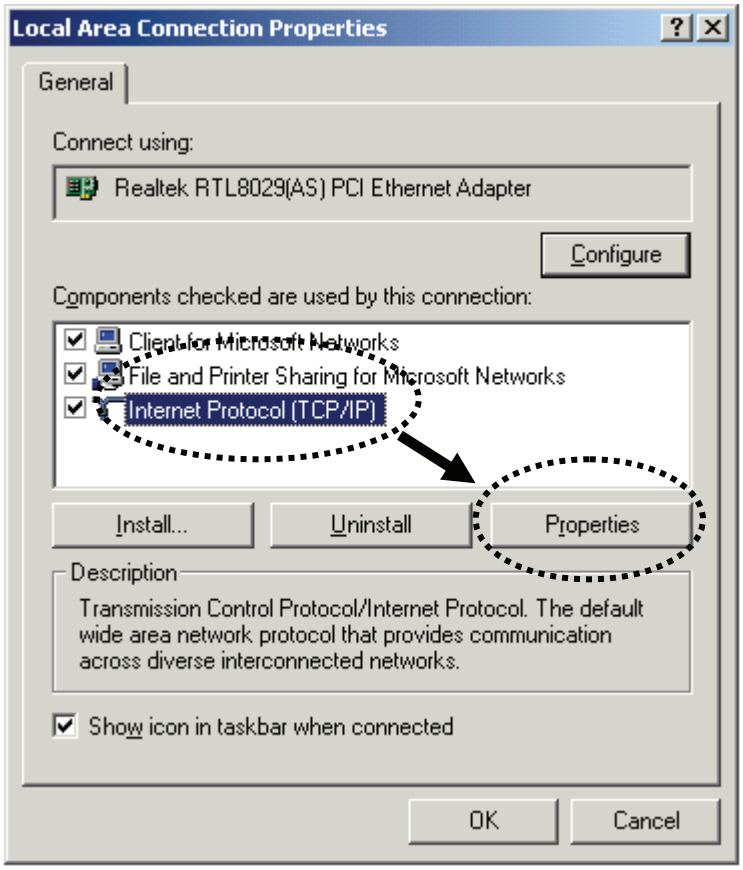


2. Select 'Obtain an IP address from a DHCP server' and then click 'OK'.

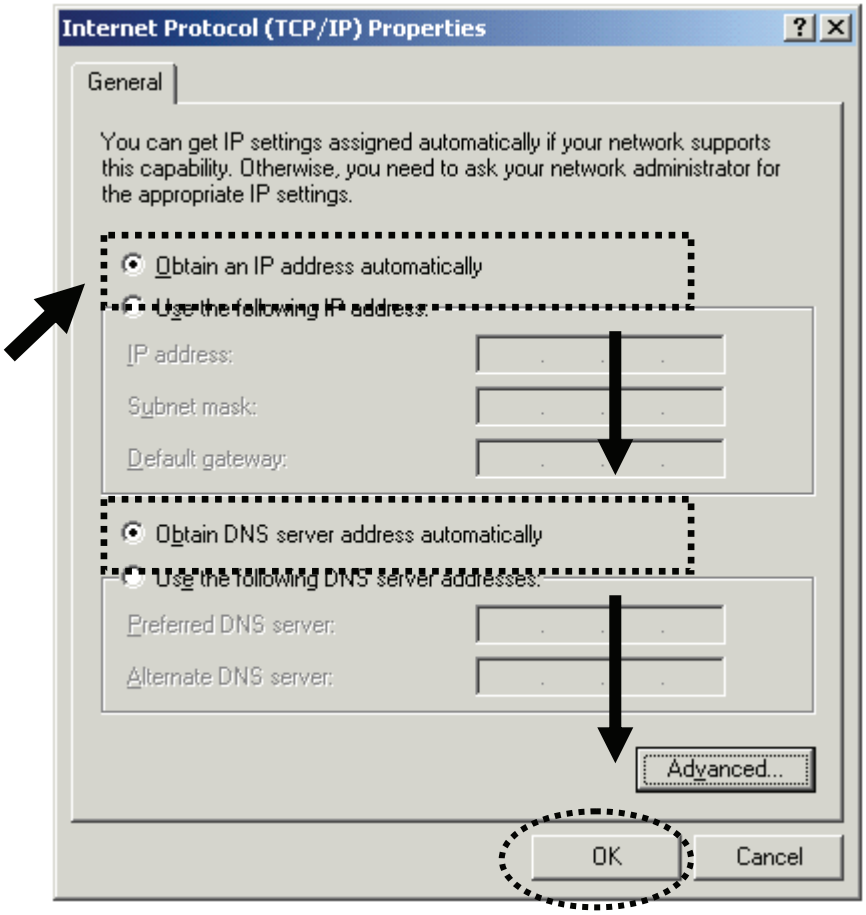

TCP/IP Properties
Bindings
Advanced
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address from a DHCP server
Specify an IP address:
IP Address:
Subnet Mask:
OK
Cancel

2-2-2Windows 2000 IP address setup:

1. Click 'Start' button, then click control panel. Double-click the ***Network and Dial-up Connections*** icon; click ***Local Area Connection,*** and the ***Local Area Connection Properties*** window will appear. Select 'Internet Protocol (TCP/IP)' and then click 'Properties'.

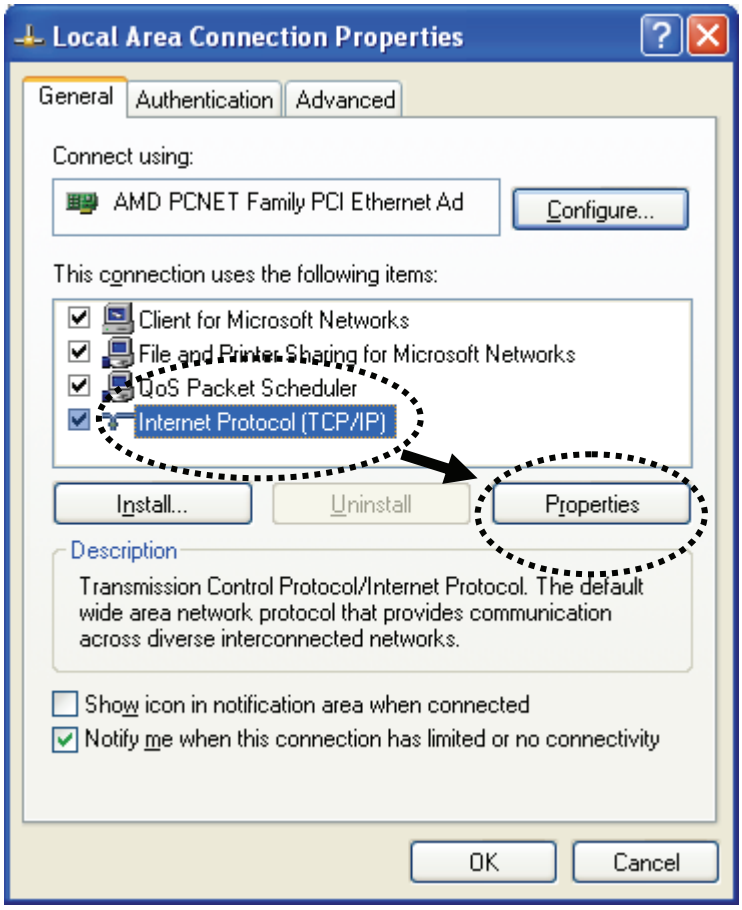


2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click 'OK'.

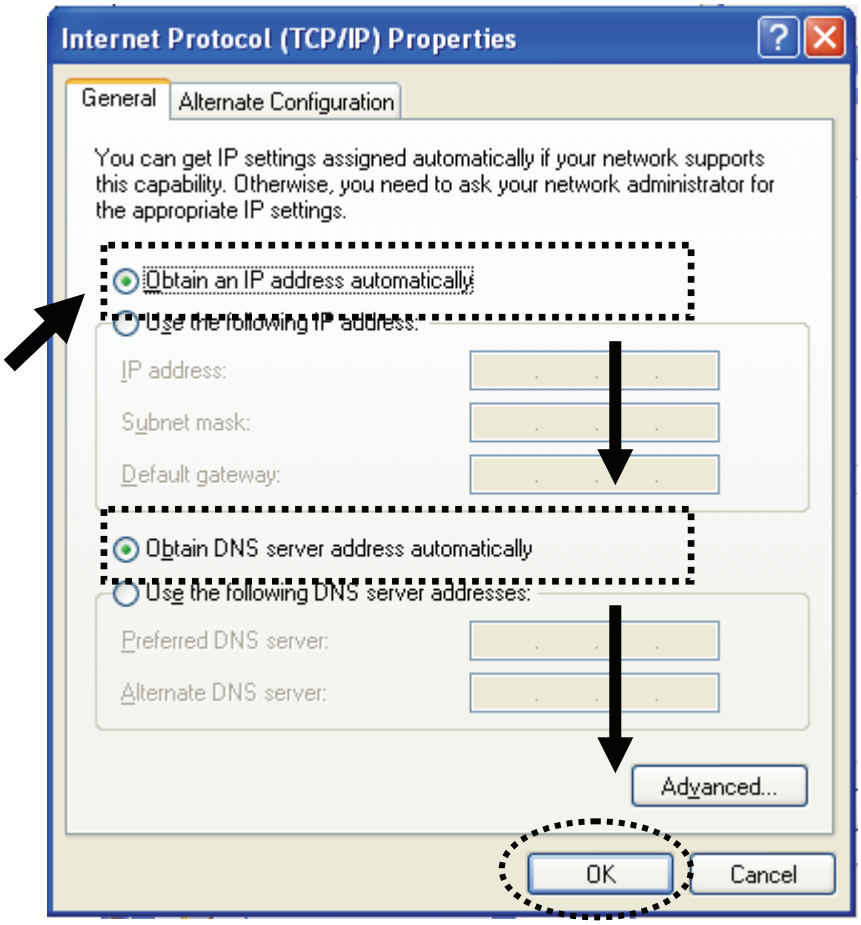

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

2-2-3Windows XP IP address setup:

1. Click the 'Start' button, then click 'control panel'. Double-click the ***Network and Internet Connections*** icon, click ***Network Connections,*** then double-click ***Local Area Connection.*** The ***Local Area Connection Status*** window will appear, and then click 'Properties'.

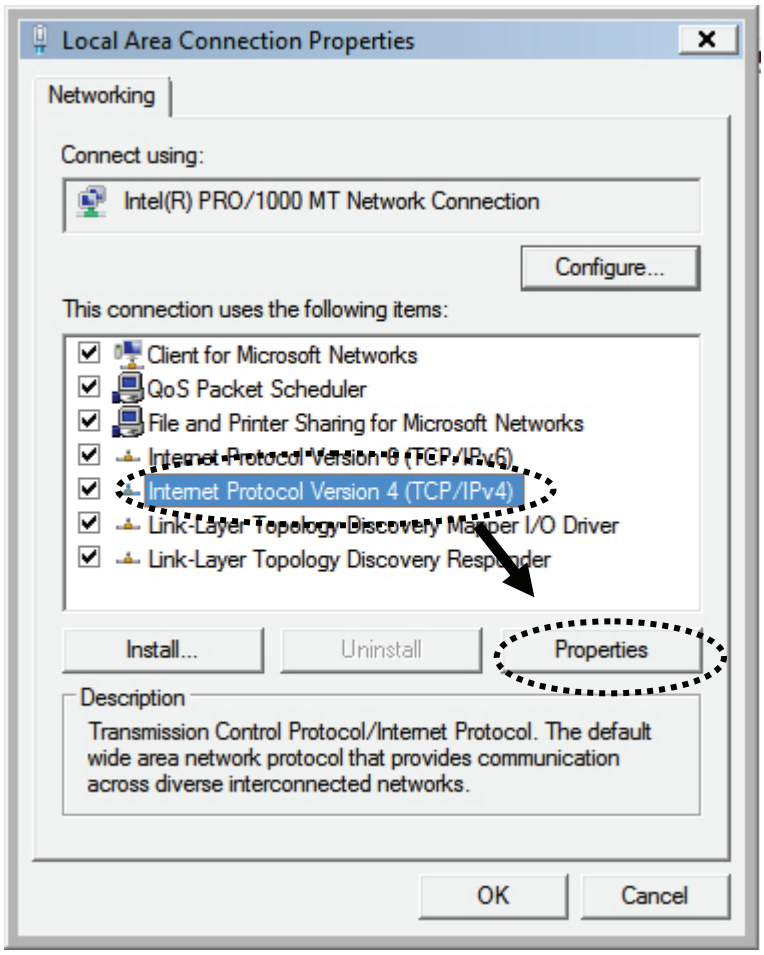


2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click 'OK'.

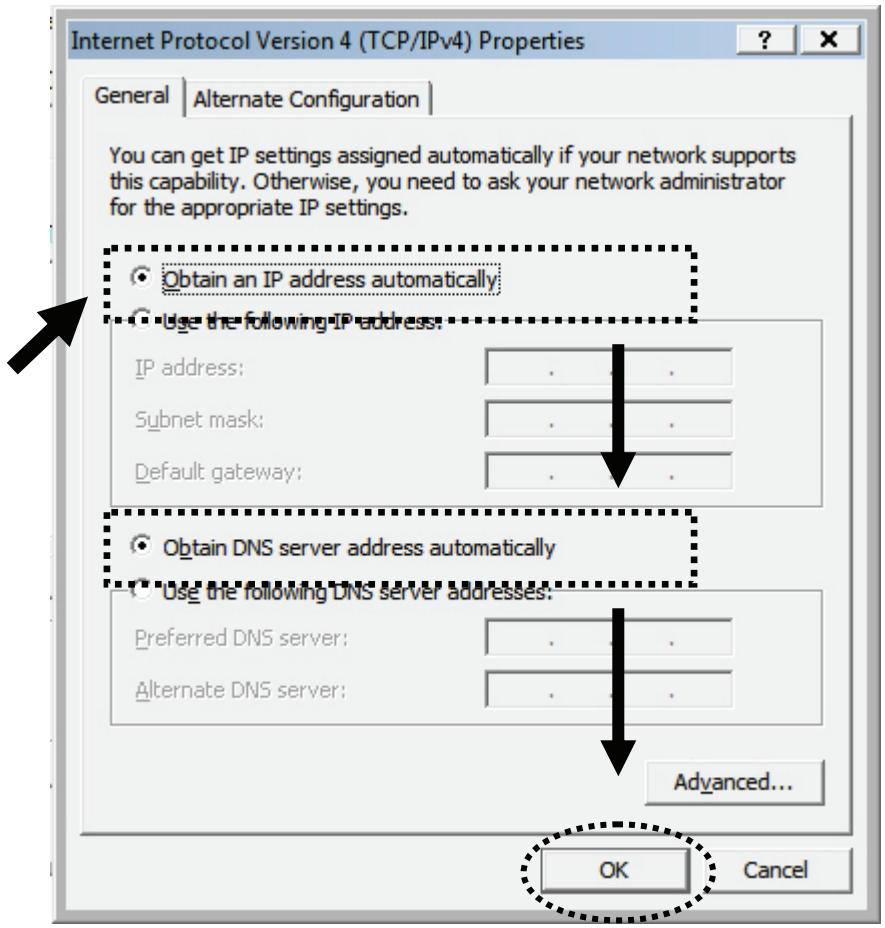

Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

2-2-4Windows Vista IP address setup:

1. Click the 'Start' button, then click 'control panel'. Click ***View Network Status and Tasks***, and then click ***Manage Network Connections.*** Right-click ***Local Area Network, then select 'Properties'.*** The ***Local Area Connection Properties*** window will appear, select 'Internet Protocol Version 4 (TCP / IPv4), and then click 'Properties'.

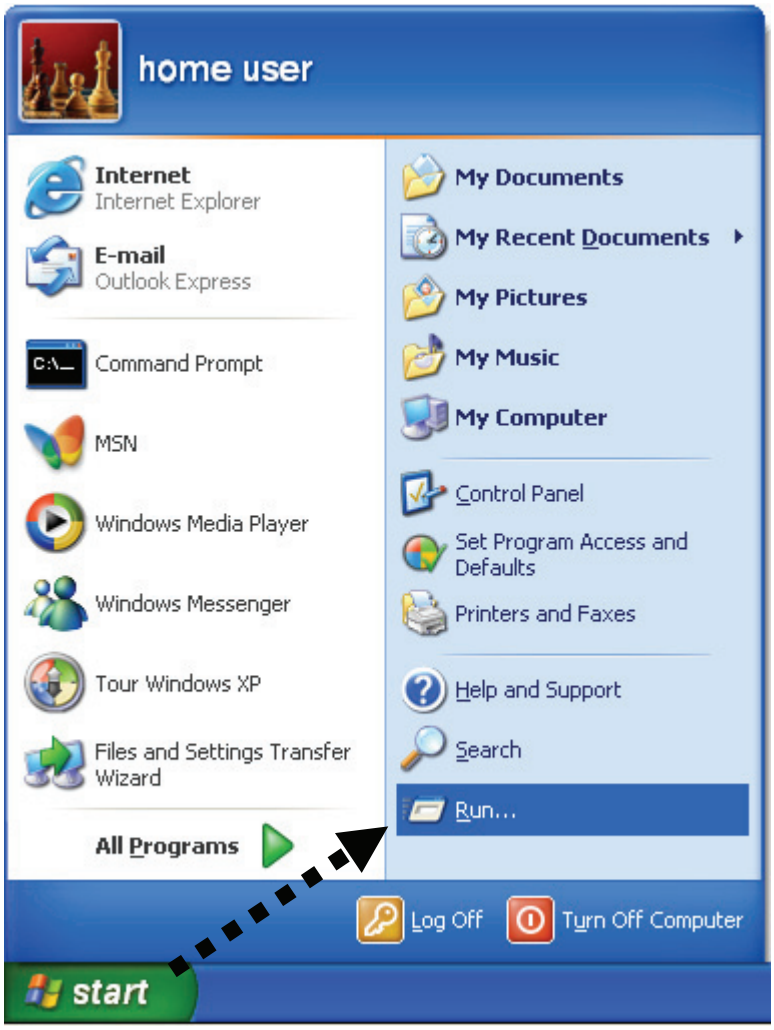


2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click 'OK'.

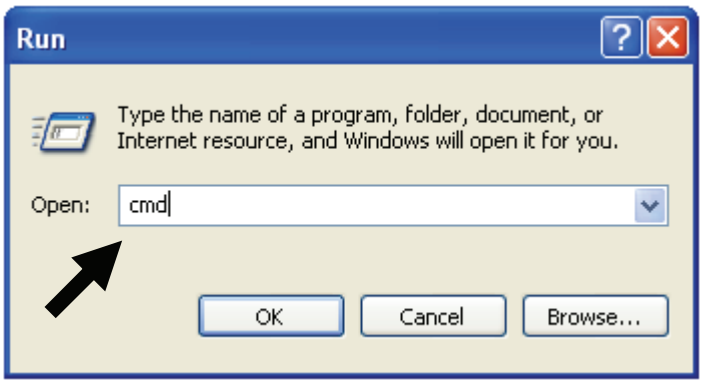

Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

2-2-5 Router IP address lookup

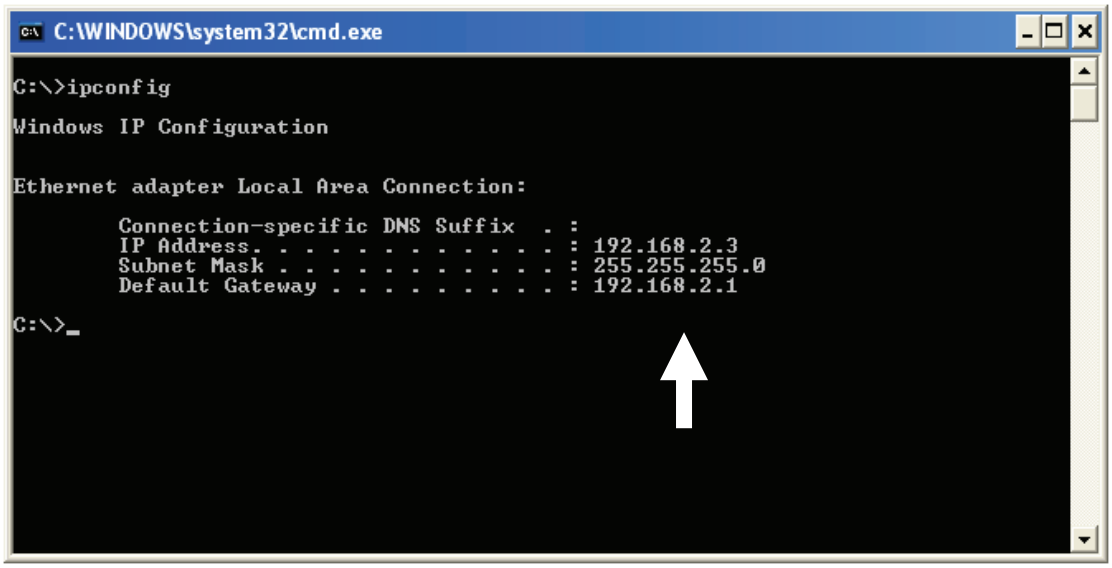
After the IP address setup is complete, Click 'start' -> 'run' at the bottom-left corner of your desktop:



Input 'cmd', then click 'OK'.



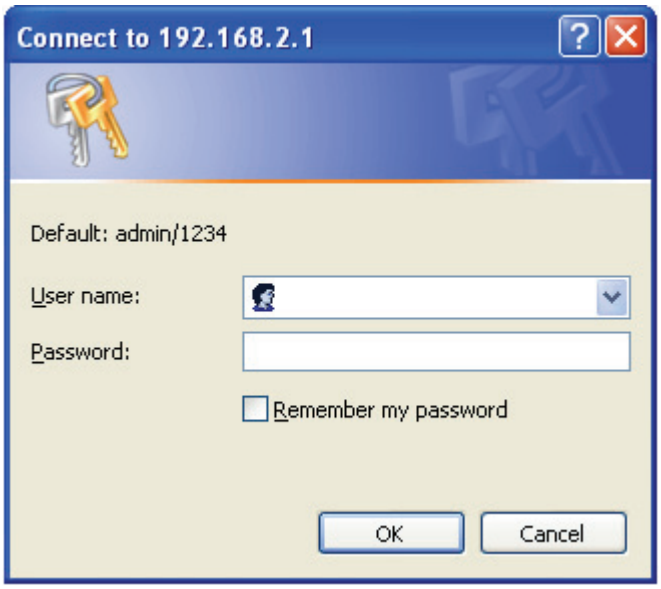
Input 'ipconfig', then press the 'Enter' key. Check the IP address followed by 'Default Gateway', in this example, the IP address of the router is 192.168.2.1, ***please note that this value may be different.***


C:\WINDOWS\system32\cmd.exe
C:\>ipconfig
Windows IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
IP Address. . . . . : 192.168.2.3
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.2.1
C:\>

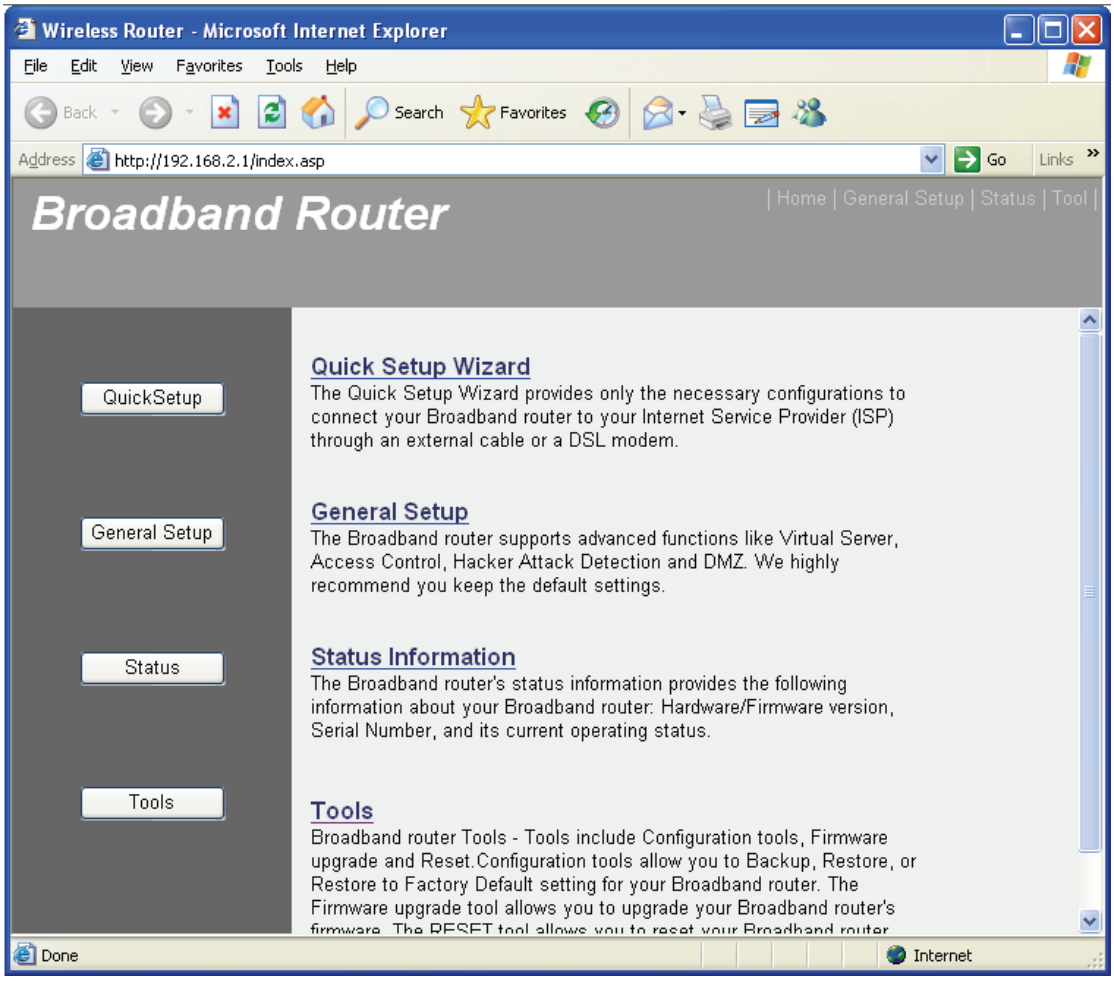
NOTE: If the IP address of the Gateway is not displayed, or the address followed by 'IP Address' begins with '169', recheck the network connection between your computer and the router, and go to the beginning of this chapter to recheck every step of the network setup procedure.

3. Connect the router's management interface by the Web browser

After your computer has obtained an IP address from the router, start your Web browser, and input the IP address of the router into the address bar. The following message should be shown:



Enter user name and password. The default user name is 'admin', and default password is '1234'. Press 'OK', and you can see the Web management interface of this router:


Wireless Router - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://192.168.2.1/index.asp
Go Links
Broadband Router
| Home | General Setup | Status | Tool |
QuickSetup
General Setup
Status
Tools
Quick Setup Wizard
The Quick Setup Wizard provides only the necessary configurations to connect your Broadband router to your Internet Service Provider (ISP) through an external cable or a DSL modem.
General Setup
The Broadband router supports advanced functions like Virtual Server, Access Control, Hacker Attack Detection and DMZ. We highly recommend you keep the default settings.
Status Information
The Broadband router's status information provides the following information about your Broadband router: Hardware/Firmware version, Serial Number, and its current operating status.
Tools
Broadband router Tools - Tools include Configuration tools, Firmware upgrade and Reset.Configuration tools allow you to Backup, Restore, or Restore to Factory Default setting for your Broadband router. The Firmware upgrade tool allows you to upgrade your Broadband router's
Done
Internet

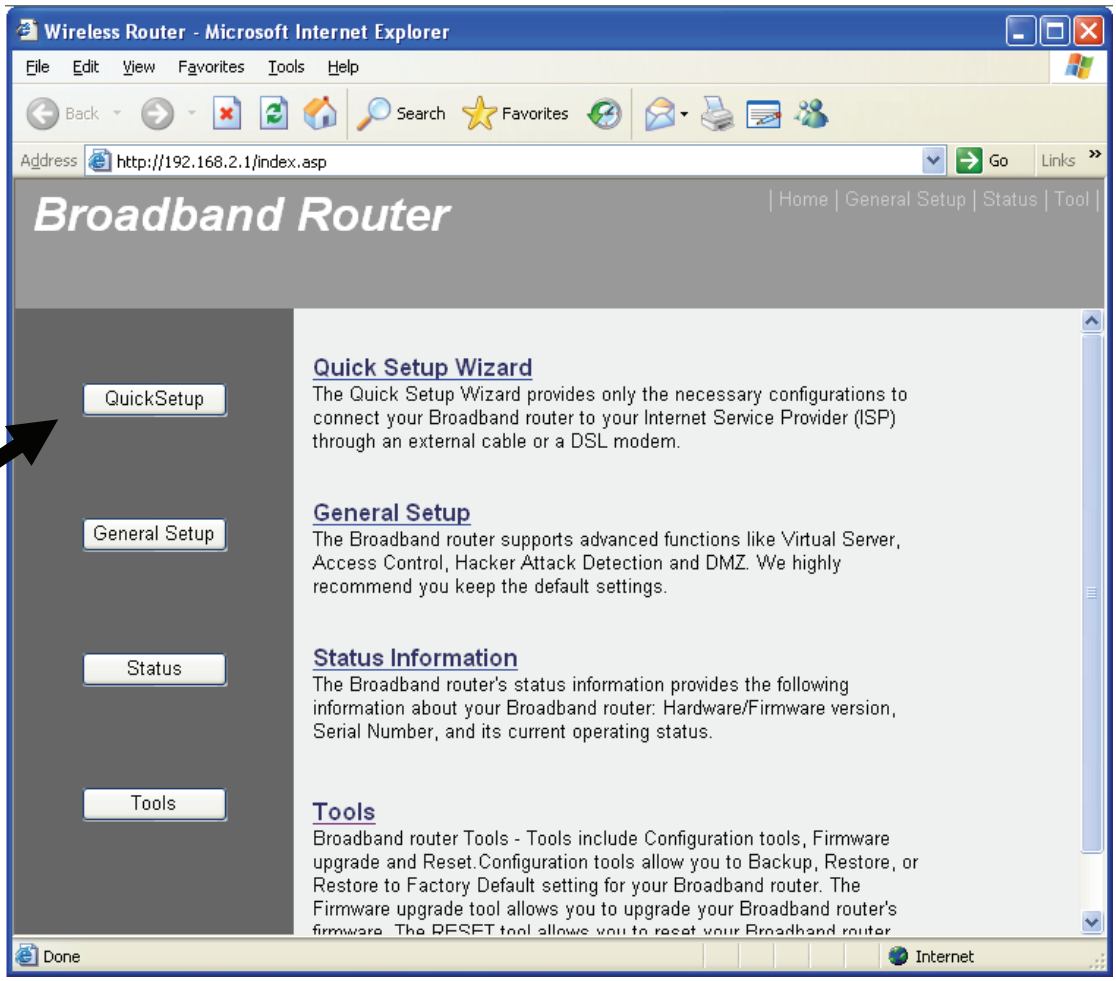
NOTE: If you can't see the Web management interface, and you're being prompted to input the user name and password again, it means you didn't input the correct username and password. Retype user name and password. If you're certain that the user name and password you typed are correct, please go to '4-2 Troubleshooting' to perform a factory reset to set the password back to default value.

TIP: This page shows the four major setting categories: QuickSetup, General Setup, Status, and Tools. You can find the shortcut which leads to these setting categories at the upper-right corner of every page, and you can jump to another category directly by clicking the link.

2-3 Using Quick Setup

This router provides a Quick Setup procedure, which will help you to complete all required settings you need to access the Internet quickly. Follow the instructions below to complete the 'Quick Setup':

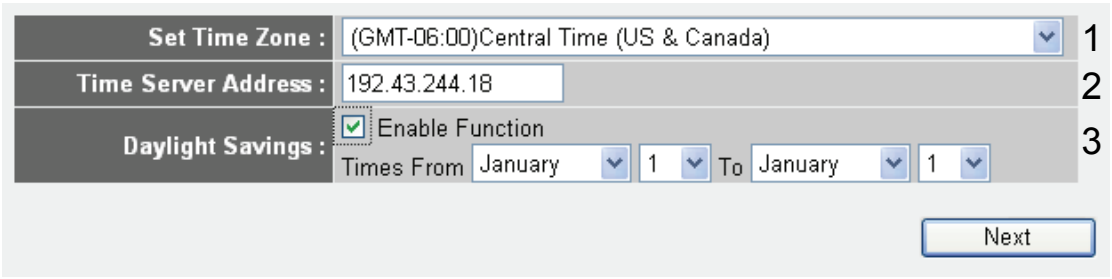
Please go to the QuickSetup menu by clicking 'QuickSetup' button.


Wireless Router - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://192.168.2.1/index.asp
Go Links
Broadband Router
| Home | General Setup | Status | Tool |
QuickSetup
General Setup
Status
Tools
Quick Setup Wizard
The Quick Setup Wizard provides only the necessary configurations to connect your Broadband router to your Internet Service Provider (ISP) through an external cable or a DSL modem.
General Setup
The Broadband router supports advanced functions like Virtual Server, Access Control, Hacker Attack Detection and DMZ. We highly recommend you keep the default settings.
Status Information
The Broadband router's status information provides the following information about your Broadband router: Hardware/Firmware version, Serial Number, and its current operating status.
Tools
Broadband router Tools - Tools include Configuration tools, Firmware upgrade and Reset.Configuration tools allow you to Backup, Restore, or Restore to Factory Default setting for your Broadband router. The Firmware upgrade tool allows you to upgrade your Broadband router's
Done
Internet

HERE!

The following message will be displayed:

1. Set Time Zone



Items and meanings:

Set Time (1):	*Press the button to open a drop-down list and Select the time zone of the location you live in.*
Time Server Address (2):	*Input the IP address / host name of time server here. It is normally not required to make a change. However, should the default Time Server (NTP Server) go offline, you can obtain a new NTP Server at http:/www.ntp.org.*
Daylight Savings (3):	*If the country you live in uses daylight saving, activate the 'Enable Function' and choose the duration of daylight saving.*

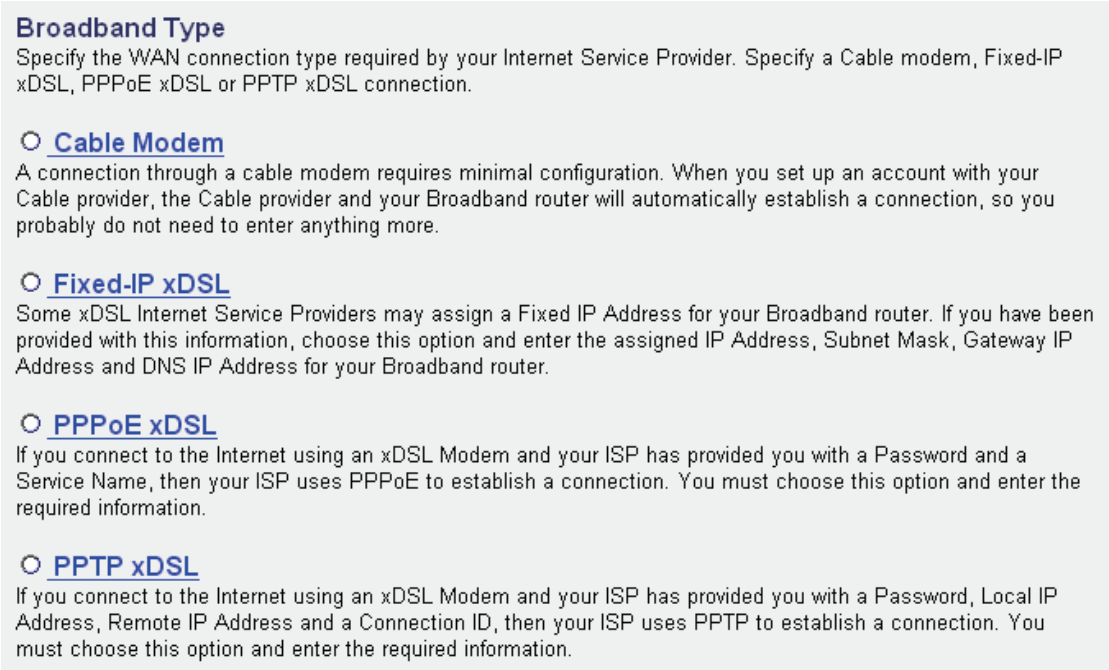
Click 'Apply'.

NOTE: There are several time (NTP) servers available on the Internet:

129.6.15.28 (time-a.nist.gov)
132.163.4.101 (time-a.timefreq.bldrdoc.gov)
131.107.1.10 (time-nw.nist.gov)

A list of free NTP Servers is available at http://www.ntp.org.

2. Broadband Type


Broadband Type
Specify the WAN connection type required by your Internet Service Provider. Specify a Cable modem, Fixed-IP xDSL, PPPoE xDSL or PPTP xDSL connection.
Cable Modem
A connection through a cable modem requires minimal configuration. When you set up an account with your Cable provider, the Cable provider and your Broadband router will automatically establish a connection, so you probably do not need to enter anything more.
Fixed-IP xDSL
Some xDSL Internet Service Providers may assign a Fixed IP Address for your Broadband router. If you have been provided with this information, choose this option and enter the assigned IP Address, Subnet Mask, Gateway IP Address and DNS IP Address for your Broadband router.
PPPoE xDSL
If you connect to the Internet using an xDSL Modem and your ISP has provided you with a Password and a Service Name, then your ISP uses PPPoE to establish a connection. You must choose this option and enter the required information.
PPTP xDSL
If you connect to the Internet using an xDSL Modem and your ISP has provided you with a Password, Local IP Address, Remote IP Address and a Connection ID, then your ISP uses PPTP to establish a connection. You must choose this option and enter the required information.

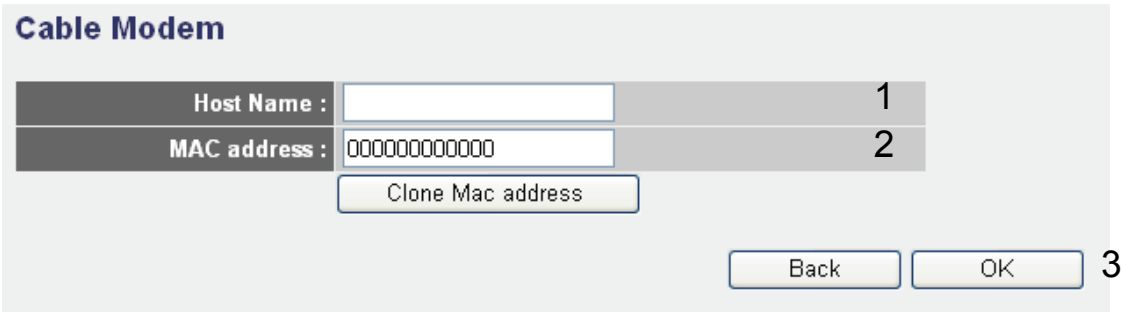
Choose the broadband (Internet connection) type you use; there are six types of Internet connections:

Cable Modem	**- Please go to section 2-3-1**
Fixed-IP xDSL	- Please go to section 2-3-2
PPPoE xDSL	**- Please go to section 2-3-3**
PPTP xDSL	- Please go to section 2-3-4
L2TP xDSL	- Please go to section 2-3-5
Telstra Big Pond	- Please go to section 2-3-6

Cable Modem and **PPPoE xDSL** are the most common connection types. If you're not sure which service you have, contact your Internet service provider (ISP). You will not be able to connect to the internet if the wrong connection type is chosen.

NOTE: DSL Internet Service Providers normally operate using the PPPoE protocol, thus, "PPPoE xDSL" should be the Broadband Type. However, in recent years more DSL ISPs provide customers with DSL Modems which handle the PPPoE portion of the Internet Access automatically. In those cases you must select "Cable Modem" as your Broadband type, even if you have a DSL service.

2-3-1 Setup procedure for Cable Mode':

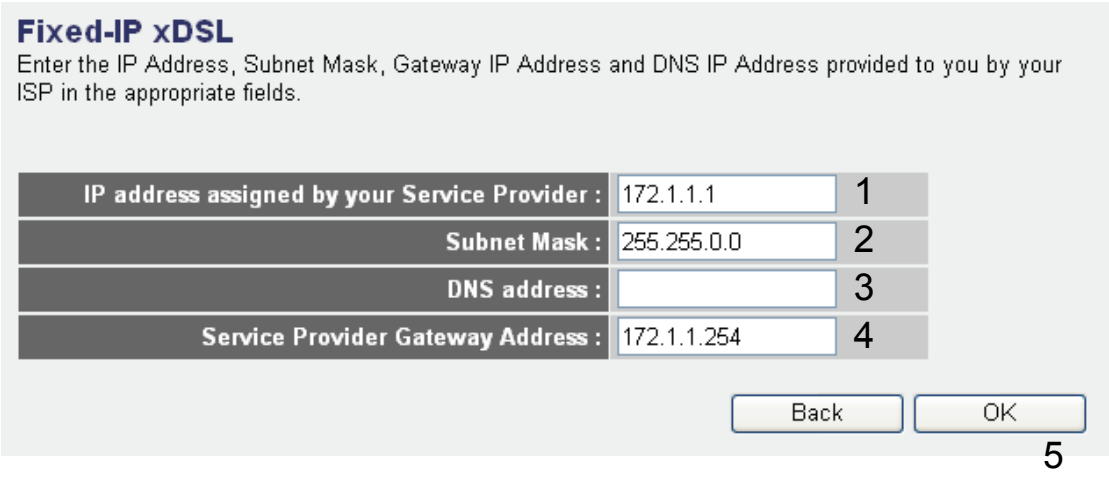


Items and meanings:

Host Name (1):	*Input the host name of your computer. This is optional, and only required if your service provider asks you to do so.*
MAC address (2):	*Enter the MAC address of your computer here, if your service provider only permits a computer with a certain MAC address to access the Internet. If you're using a computer used to connect to the Internet via cable modem, you can simply press the 'Clone Mac address' button to fill the MAC address field with the MAC address of your computer.*

To save the settings click the 'OK' button; if you want to go back to the previous menu, click 'Back'.

2-3-2 Setup procedure for 'Fixed-IP xDSL':



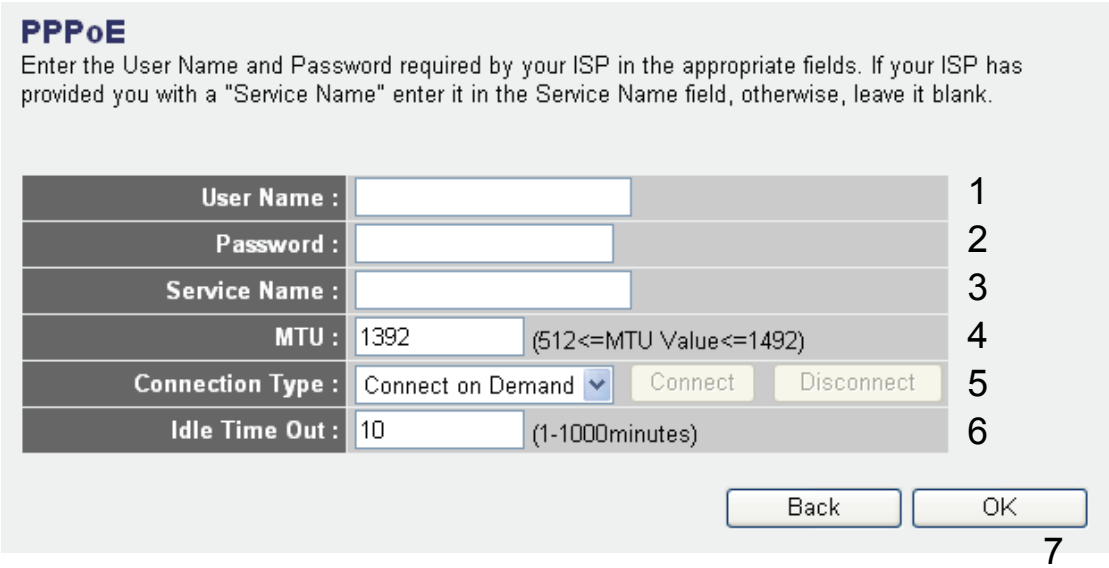
Items and meanings:

IP address Service Provider (1):	*Enter the IP address assigned by your Internet Service Provider (ISP).*
Subnet Mask (2):	*Input the subnet mask assigned by your service provider*
DNS address (3):	*Enter the IP address of the DNS server provided by your ISP.*
Service Provider Gateway Address (4):	*Enter the Gateway IP address provided by your ISP.*

To save the settings, click the 'OK' button; if you want to go back to previous menu, click 'Back'.

NOTE: You can choose this Internet connection method if your service provider assigns a fixed IP address (also know as static address) to you, and doesn't use DHCP or PPPoE protocol. Contact your service provider for further information.

2-3-3 Setup procedure for 'PPPoE xDSL':


PPPoE
Enter the User Name and Password required by your ISP in the appropriate fields. If your ISP has provided you with a "Service Name" enter it in the Service Name field, otherwise, leave it blank.
User Name :
Password :
Service Name :
MTU : 1392 (512<=MTU Value<=1492)
Connection Type : Connect on Demand Connect Disconnect
Idle Time Out : 10 (1-1000minutes)
Back OK
1
2
3
4
5
6
7

Items and meanings:

User Name (1):	*Enter the user name assigned by your Internet service provider here.*
Password (2):	*Input the password assigned by your Internet service provider here.*
Service Name (3):	*Provide a name for this Internet service. This is optiona.l*
MTU (4):	*Enter the MTU value of your network connection here. Use default value unless your ISP specifies otherwise.*
Connection (5):	*Select the connection type(detailed explanation listed below).*
Idle Time Out (6):	*Specify the idle time out, (detailed explanation listed below).*

To save the settings click the 'OK' button; if you want to go back to the previous menu, click 'Back'.

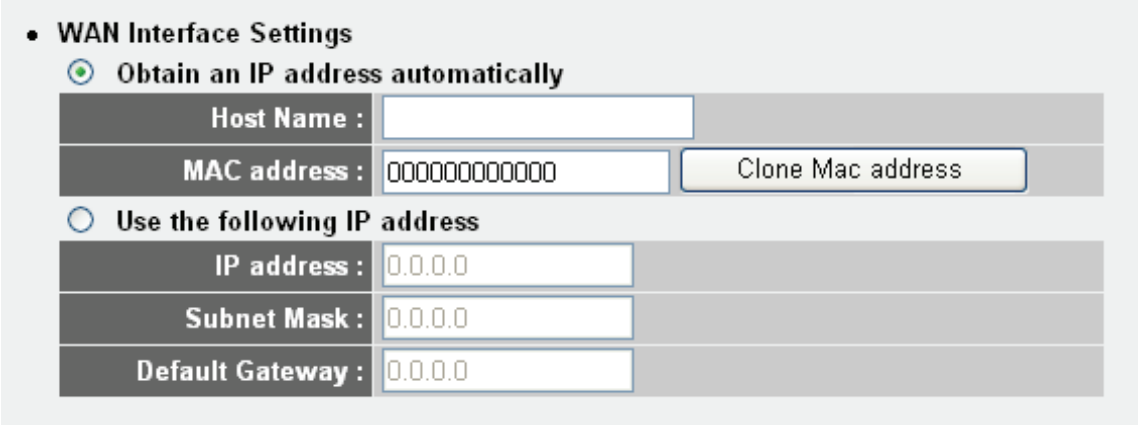
Connection Type - There are 3 options:
"Continuous'"- keep the Internet connection alive, do not disconnect. This is the preferred choice for "always on" / "Flat rate" Internet services.

"Connect on Demand" - only connects to the Internet when there's a connect attempt. This is the preferred choice for all users who have paid per minute Internet Service or per transferred data.

"Manual" - only connects to the Internet when the 'Connect' button on this page is pressed, and disconnects when the 'Disconnect button is pressed.

2-3-4 Setup procedure for 'PPTP xDSL':

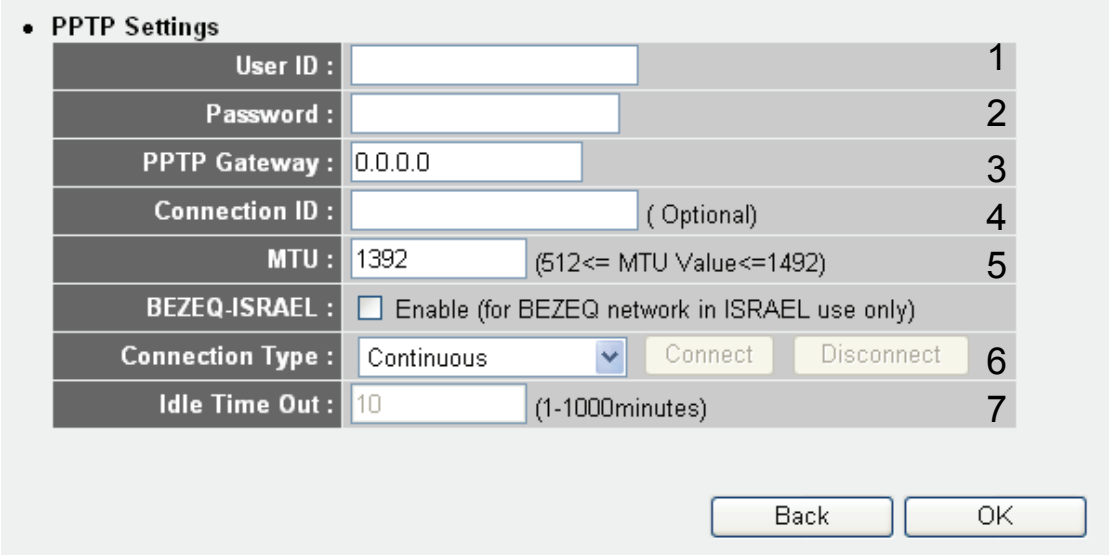
PPTP xDSL requires two kinds of settings: WAN interface setting (setup IP address) and PPTP setting (PPTP user name and password).
We start with the WAN interface settings:



Select how you obtain IP address from your service provider here. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to 'Cable Modem' section above), or 'Use the following IP address' (i.e., static IP address).

The WAN interface settings must be correctly entered, or the Internet connection will fail even if the PPTP settings are correct. Contact your ISP if you don't know how you should fill in these fields.

PPTP settings section:



Items and meanings: 8

User ID (1): *Enter the user ID (user name) assigned by your ISP.*

Password (2): *Input the password provided by your ISP.*

PPTP Gateway (3): *Input the IP address of PPTP gateway assigned by your Internet service provider here.*

Connection ID (4): *Enter the connection ID here. This is optional and you can leave it blank.*

MTU (5): *Specify the MTU value of your network connection here. Use the default value unless your ISP specifies otherwise.*

Connection type (6): *Select the connection type - see xDSL PPPoE.*

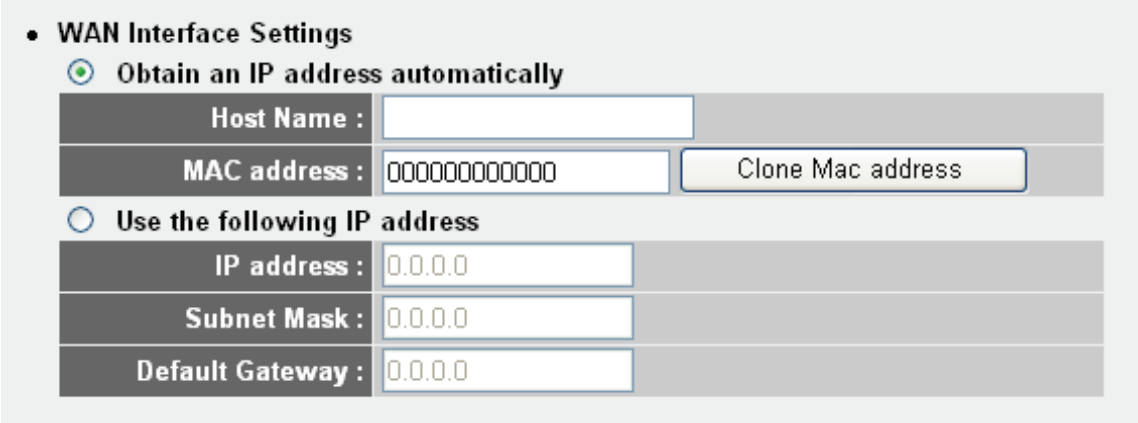
Idle Time Out (7): *Specify the idle time out - see xDSL PPPoE.*

Enabling 'BEZEQ-ISRAEL' is only required if you're using the BEZEQ network provider in Israel.
To save the settings click the 'OK' button; if you want to go back to the previous menu, click 'Back'.

2-3-5 Setup procedure for 'L2TP xDSL':

L2TP is another popular connection method for xDSL and other Internet connection types, and all required setting items are the same as the PPTP connection.

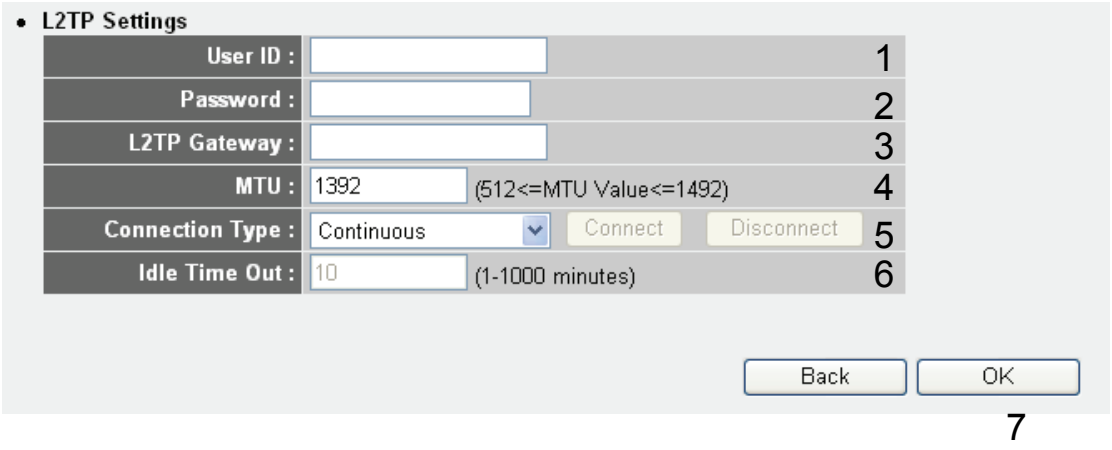
As with PPTP there are two kinds of settings. Fist come the 'WAN Interface Settings':



Select how you obtain an IP address from your service provider here. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to 'Cable Modem' section above) or 'Use the following IP address' (i.e. static IP address).

The WAN interface settings must be correctly entered or the Internet connection will fail even if the L2TP settings are correct. Contact your ISP if you don't know how you should fill in these fields.

2-3-4 Setup procedure for 'L2TP':

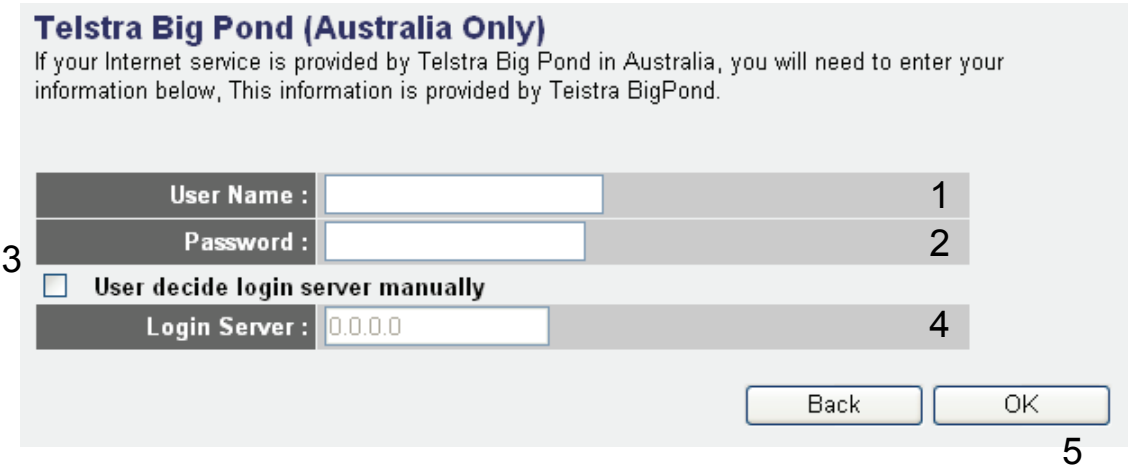


Items and meanings:

User ID (1):	*Enter the user ID assigned by your ISP.*
Password (2):	*Type in the password assigned by your ISP.*
L2TP Gateway (3):	*Input the IP address of the L2TP gateway assigned by your ISP here.*
MTU (4):	*Specify the MTU value of your network connection here. Use the default value unless your ISP specifies otherwise.*
Connection type (5):	*Select the connection type- see xDSL PPPoE.*
Idle Time Out (6):	*Specify the idle time out - see xDSL PPPoE.*

To save the settings, click the 'OK' button; if you want to go back to the previous menu, click 'Back'.

2-3-6 Setup procedure for 'Telstra Big Pond':



This setting only works when you're using Telstra Big Pond's network service in Australia. You need to input:

User Name (1): *Input the user name assigned by Telstra.*

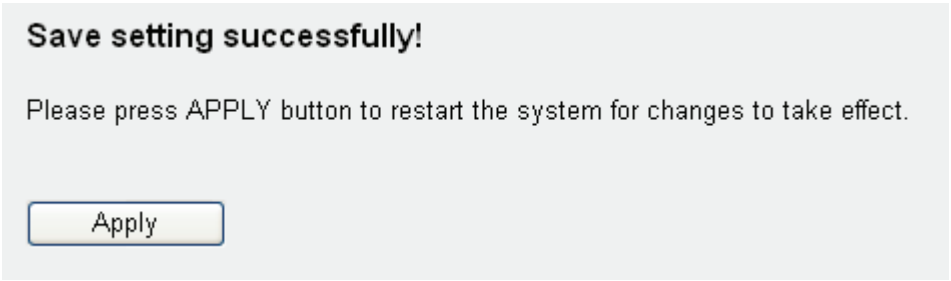
Password (2): *Input the password assigned by Telstra.*

User device login server manually (3): *Check this box to choose the login server by yourself.*

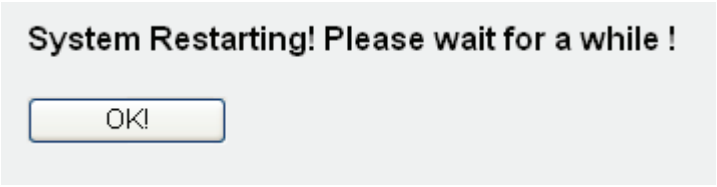
Login Server (4): *Enter the IP address of the login server here.*

To save the settings click the 'OK' button; if you want to go back to the previous menu, click 'Back'.

When all settings are finished, you'll see the following message displayed on your Web browser:



Click the 'Apply' button to prepare to restart the router, and you'll see this message:



Wait for about 30 seconds, then click 'OK!'.
You'll be forwarded to the router management Web interface. The router is now running with the new settings.

If all information entered is correct, you can access the Internet now.

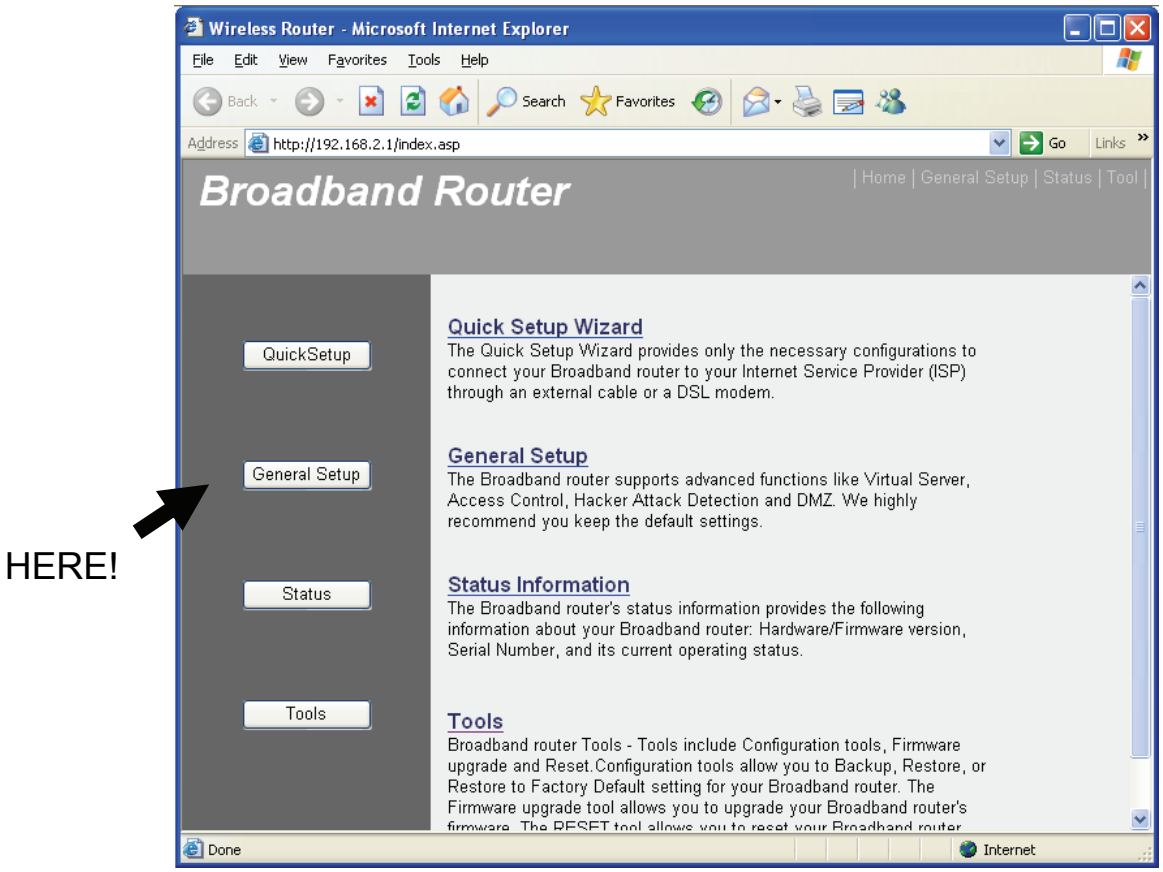
Attention DSL Users:
While PPPoE is the most common way to connect to DSL Internet Service, it still may be necessary to enable "Cable Modem" in the Broadband settings.

Below are a few examples for using "Cable Modem" instead of "xDSL PPPoE", even if your Internet Service is a DSL service.

- Your ISP has provided you with a so-called 'Modem-Router' instead of a simple "Modem"
- You ISP has not given you a username and password for PPPoE login (implying that it is not required)
- When your computer is connected directly to the modem, the Computer obtains an IP address which is in the private IP network range (192.168.xxx.yyy, 10.xxx.yyy, 172.16.xxx.yyy)
- You can connect to the Internet with your computer connected directly to the modem without using a dialer program asking for a username and password
- If your attempts to utilize xDSL/PPPoE fail repeatedly you should activate "Cable Modem" as a troubleshooting step.

2-4 Basic Setup

In this chapter, you'll learn how to change the time zone, password, and remote management settings. Start your Web browser and logon to the router's Web management interface by opening http://192.168.2.1, then click the 'General Setup' button on the left.

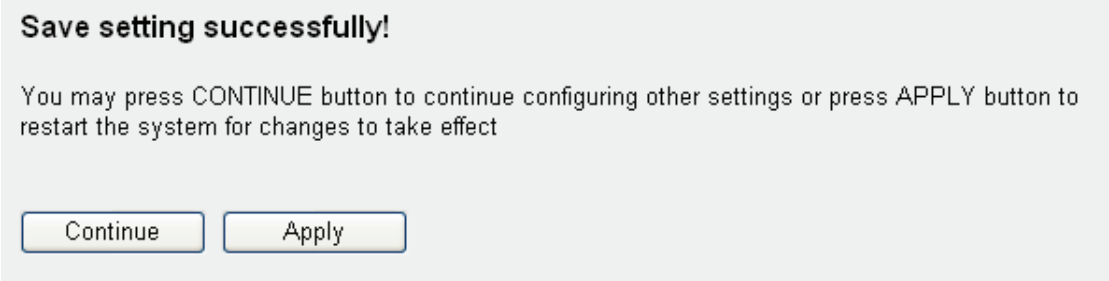

HERE!
Wireless Router - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address http://192.168.2.1/index.asp
Go Links
Broadband Router
| Home | General Setup | Status | Tool |
QuickSetup
General Setup
Status
Tools
Quick Setup Wizard
The Quick Setup Wizard provides only the necessary configurations to connect your Broadband router to your Internet Service Provider (ISP) through an external cable or a DSL modem.
General Setup
The Broadband router supports advanced functions like Virtual Server, Access Control, Hacker Attack Detection and DMZ. We highly recommend you keep the default settings.
Status Information
The Broadband router's status information provides the following information about your Broadband router: Hardware/Firmware version, Serial Number, and its current operating status.
Tools
Broadband router Tools - Tools include Configuration tools, Firmware upgrade and Reset.Configuration tools allow you to Backup, Restore, or Restore to Factory Default setting for your Broadband router. The Firmware upgrade tool allows you to upgrade your Broadband router's
Done
Internet

2-4-1 Time zone and time auto-synchronization

Follow the following instructions to set time zone and time auto-synchronization parameters:

Click the 'System' menu on the left of the Web management interface, then click 'Time Zone', and the following message will be displayed on your Web browser: Please select time zone at 'Set time zone' drop-down list, and input the IP address or host name of the time server. If you want to enable daylight saving setting, check the 'Enable Function' box, and set the duration of daylight saving.

Click 'Apply'. You'll see the following message displayed on Web browser:


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Press 'Continue' to save the settings and make additional changes; press 'Apply' to save the settings and restart the router so the settings will take effect after it reboots.

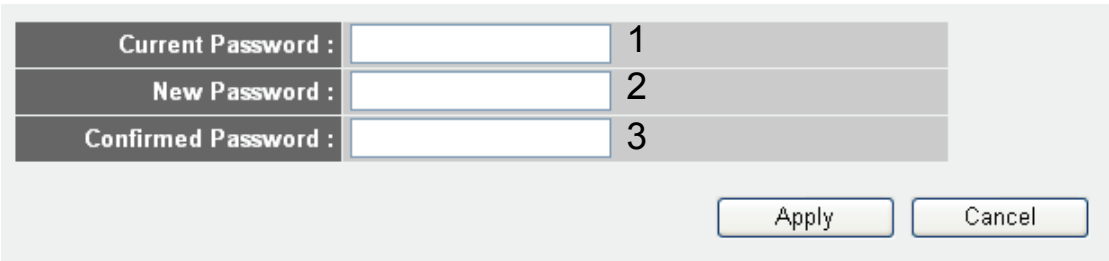
NOTE: You can refer to the instructions given in the last chapter 'Using Quick Setup' for detailed descriptions on the time zone settings.

2-4-2 Change management password

The default password of this router is 1234, and it's displayed on the login prompt when accessed from the Web browser. There's a security risk if you don't change the default password, since everyone can see it. This is very important when you have the wireless function enabled.

To change the password, do as follows:

Click the 'System' menu on the left of the Web management interface, then click 'Password Settings', and the following message will be displayed on your Web browser:

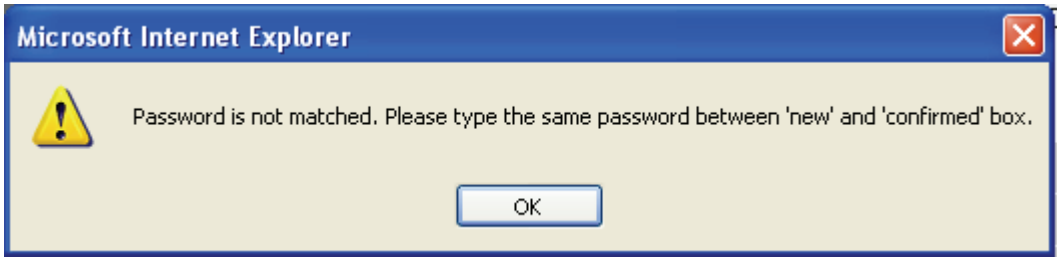


Items and meanings:

Current Password (1):	*Enter the current password here (e.g., 1234)*
New Password (2):	*Enter the new password here.*
Confirmed Password (3):	*Enter the new password here again.*

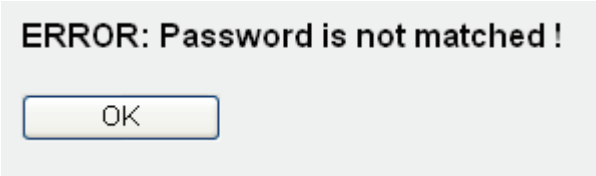
Click 'Apply' to save the changes. If you want to keep the original password unchanged, click 'Cancel'.

If the passwords you typed in 'New Password' (2) and 'Confirmed Password' (3) field are not the same, you'll see the following message:



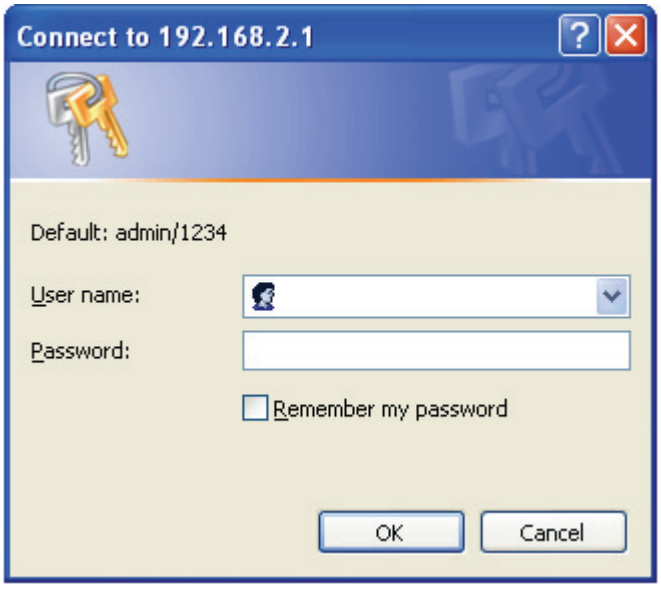
Please retype the new password when you see above message.

If you see the following message …



… it means that the content in the 'Current Password' field is wrong, Click 'OK' to go back to the previous menu, and try to input the current password again.

If the current and new passwords are correctly entered, after you click 'Apply', you'll be prompted to re-login.

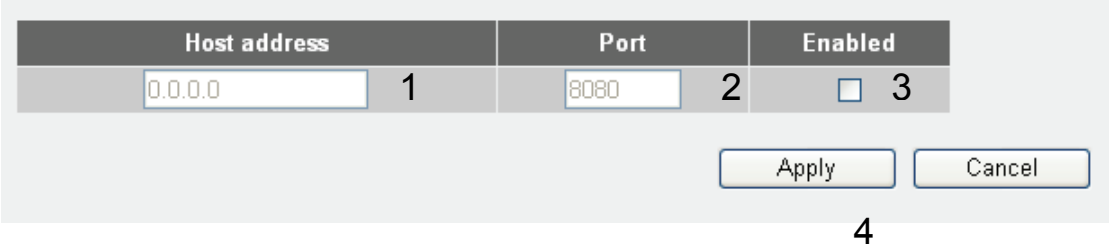


Use the username "admin" and the new password to re-login.

2-4-3 Remote Management

This router by default does not allow management access from the Internet to prevent possible security risks (especially when you have defined a weak password, or didn't change the default password). However, you can still manage this router from a specific IP address by enabling the 'Remote Management' function.

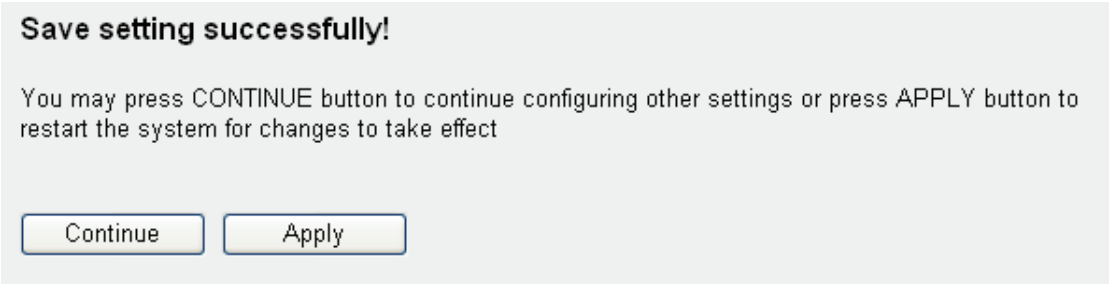
Click the 'System' menu on the left of Web management interface, then click 'Remote Management', and the following screen will be displayed on your Web browser:



Items and meanings:

Host Address (1):	*Input the IP address of the remote host you wish to initiate a management access.*
Port (2):	*You can define the port number through which this router should expect an incoming request. If you're providing a Web service (default port number is 80), you should try to use another port number. You can use the default port setting '8080', or something like '32245' or '1429' (any integer between 1 and 65534).*
Enabled (3):	*Select the field to start the configuration.*

When you finish with all settings, click 'Apply', and you'll see the following message displayed on Web browser:


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Press 'Continue' to save the settings and continue with more configuration options; press 'Apply' to save the settings and restart the router so the settings will take effect after it reboots.

NOTE: When you want to manage this router from another computer on the Internet, you have to input the IP address and port number of this router. If your Internet service provider assigns you with a static IP address, it will not be a problem; but if the IP address your service provider assigns to you will vary every time you establish an Internet connection, this will be a problem.

Either ask your service provider to give you a static IP address, or use a dynamic DNS services like DDNS.
Refer to chapter 2-5-8 'DDNS client' for details.

NOTE: The default port number the Web browser will use is '80'. If the 'Port' setting in this page is not '80', you have to assign the port number in the address bar of the Web browser manually. For example, if the IP address of this router is 1.2.3.4, and the port number you set is 8888, you have to input the following address in the address bar of the Web browser:

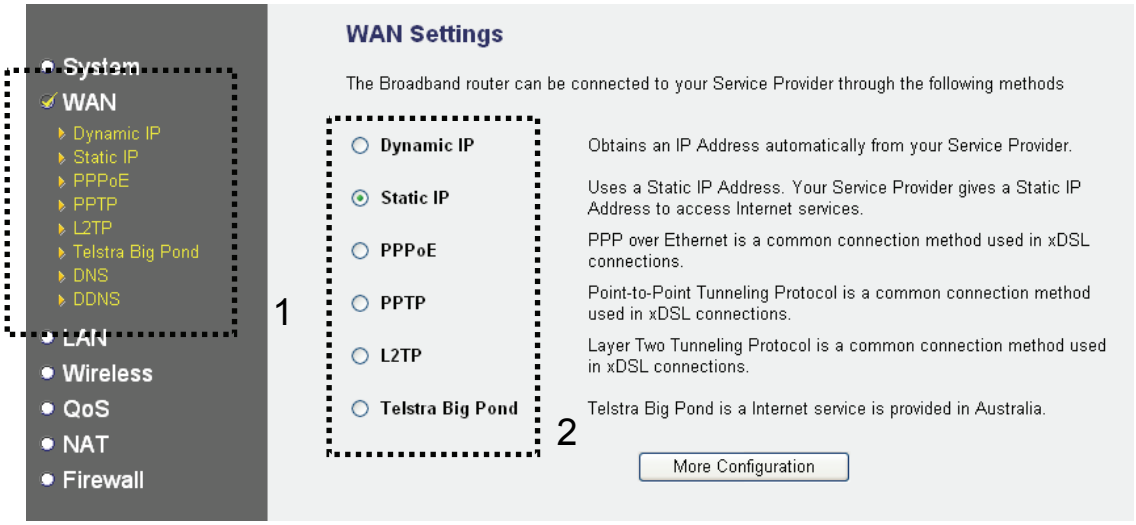
http://1.2.3.4:8888

2-5 Setup Internet Connection (WAN Setup)

Internet connection setup can be done by using the 'Quick Setup' menu described in chapter 2-3. However, you can set the WAN connections up by using the WAN configuration menu. You can also program advanced functions like DDNS (Dynamic DNS) here.

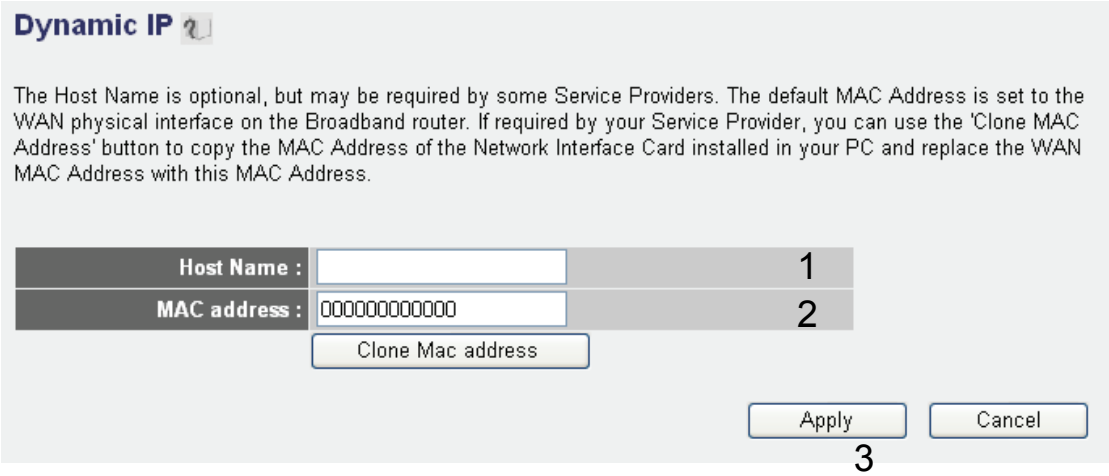
Click the 'WAN' menu on the left of the Web management interface, and the following screen will be displayed:

Select an Internet connection method based on the type of connection you're using. You can either click the connection method on the left (1) or right (2). If you select the connection method on the right, Click the 'More Configuration' button after a method is selected.



Dynamic IP	- Refer to section 2-5-1
Static IP	- Refer to section 2-5-2
PPPoE	- Refer to section 2-5-3
PPTP	- Refer to section 2-5-4
L2TP	- Refer to section 2-5-5
Telstra Big Pond	- Refer to section 2-5-6
DNS	- Refer to section 2-5-7
DDNS	- Refer to section 2-5-8

2-5-1 Setup procedure for 'Dynamic IP':

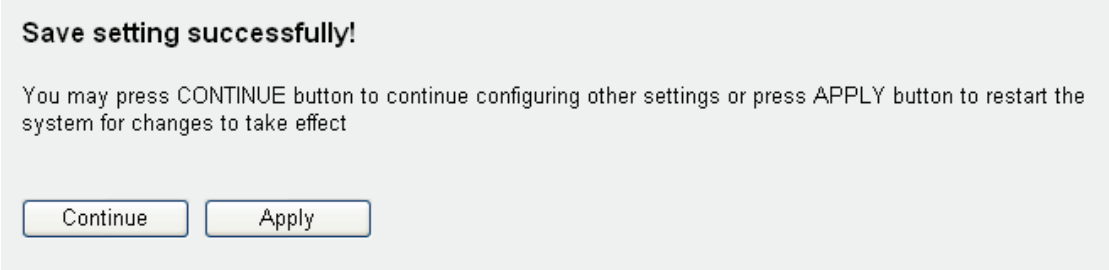

Dynamic IP
The Host Name is optional, but may be required by some Service Providers. The default MAC Address is set to the WAN physical interface on the Broadband router. If required by your Service Provider, you can use the 'Clone MAC Address' button to copy the MAC Address of the Network Interface Card installed in your PC and replace the WAN MAC Address with this MAC Address.
Host Name :
1
MAC address :
000000000000
2
Clone Mac address
Apply
Cancel
3

Items and meanings:

Host Name (1):	*Enter the host name of your computer; this is optional and is only required if your service provider asks you to do so.*
MAC Address (2):	*Enter the MAC address of your computer if your service provider only permits a computer with a certain MAC address to access the Internet. If you're using the computer used to connect to the Internet via cable modem, you can simply press the 'Clone Mac address' button to fill the MAC address field with the MAC address of your computer.*

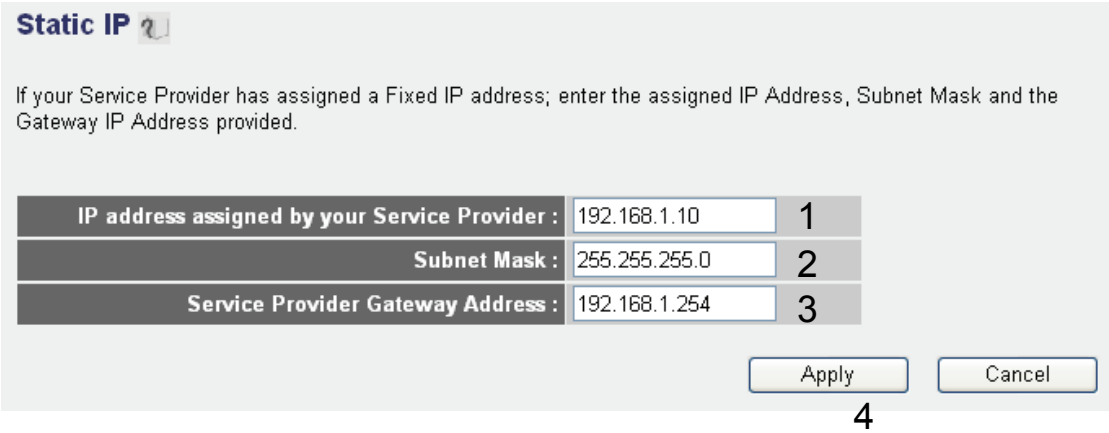
Click 'Apply' (3) to save the settings, and 'Cancel' to remove the information entered.

After you click 'Apply', the following message will be displayed on your Web browser:


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' (1) to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

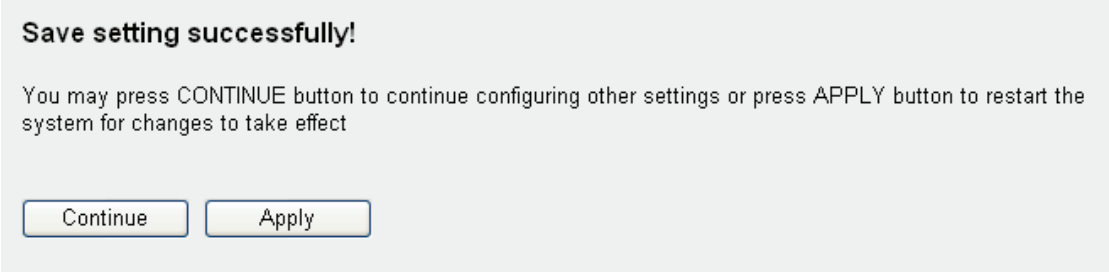
2-5-2 Setup procedure for 'Static IP':



Items and meanings:

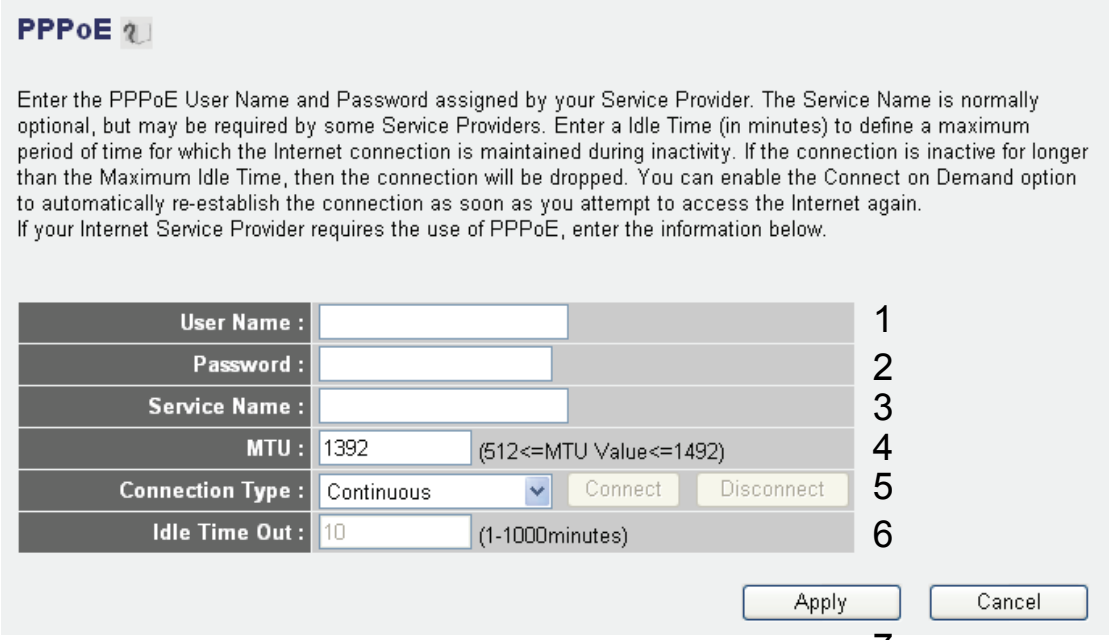
IP address assigned by your Service Provider (1):	*Enter the IP address assigned by your service provider.*
Subnet Mask (2):	*Enter the subnet mask assigned by your service provider.*
Service Provider Gateway Address (3):	*Enter the IP address of the Gateway server provided by your service provider.*

Click 'Apply' (3) to save the settings and 'Cancel' to remove the information entered.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-*5-3 Setup procedure for 'PPPoE':*


PPPoE
Enter the PPPoE User Name and Password assigned by your Service Provider. The Service Name is normally optional, but may be required by some Service Providers. Enter a Idle Time (in minutes) to define a maximum period of time for which the Internet connection is maintained during inactivity. If the connection is inactive for longer than the Maximum Idle Time, then the connection will be dropped. You can enable the Connect on Demand option to automatically re-establish the connection as soon as you attempt to access the Internet again.
If your Internet Service Provider requires the use of PPPoE, enter the information below.
User Name :
Password :
Service Name :
MTU :
1392
(512<=MTU Value<=1492)
Connection Type :
Continuous
Connect
Disconnect
Idle Time Out :
10
(1-1000minutes)
Apply
Cancel
1
2
3
4
5
6
7

Items and meanings:

User Name (1):	*Enter the user name assigned by your Internet service provider here.*
Password (2):	*Enter the password assigned by your Internet service provider here.*
Service Name (3):	*Enter a name for this Internet service; this is optional.*
MTU (4):	*Specify the MTU value of your network connection here. Use the default value unless your ISP specifies otherwise.*
Connection Type (5):	*Please select the Internet connection type you wish to use.*

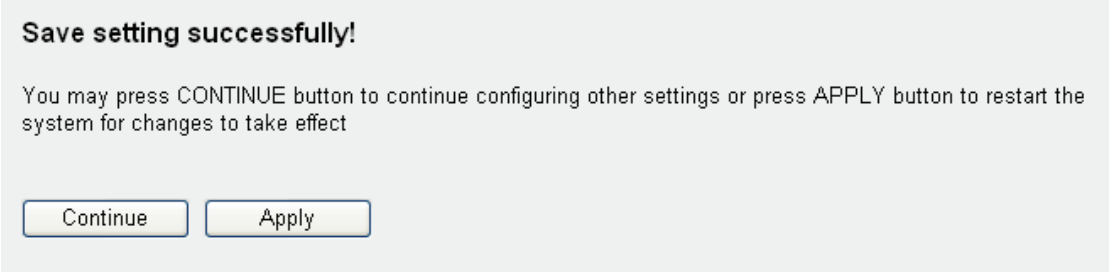
Continuous – The connection will always be kept on. If the connection is interrupted, the router will re-connect automatically.

Connect On-Demand – Only connect when you want to surf the Internet. "Idle Time Out" is set to stop the connection when the network traffic is not sending or receiving after an idle time.

Manual – After you have selected this option, you will see the "Connect" button and "Disconnect" button. Click "'Connect" and the router will connect to the ISP. If you want to stop the connection, click the "Disconnect" button.

Idle Time Out (6): *If you have selected "Connect-On-Demand", enter the idle time out.*

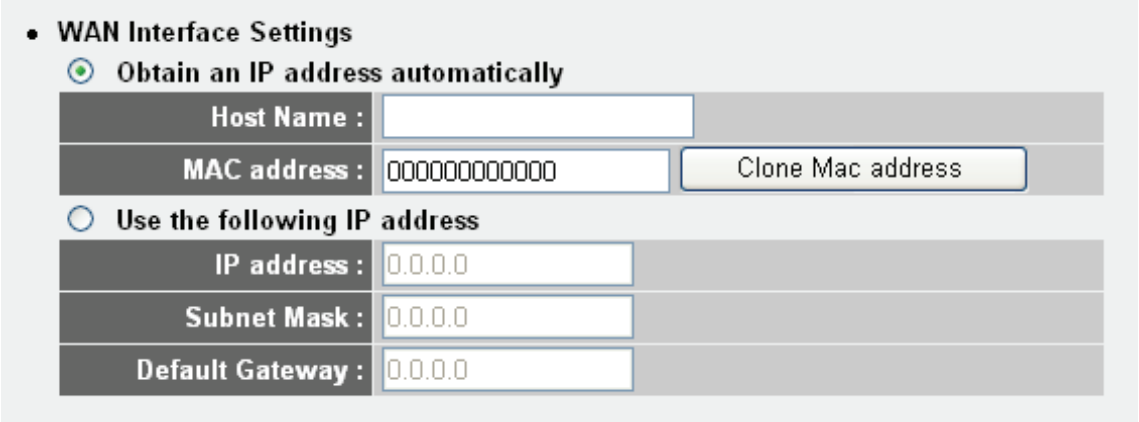
Click 'Apply' (3) to save the settings and 'Cancel' to remove the information entered.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-5-4 Setup procedure for 'PPTP':

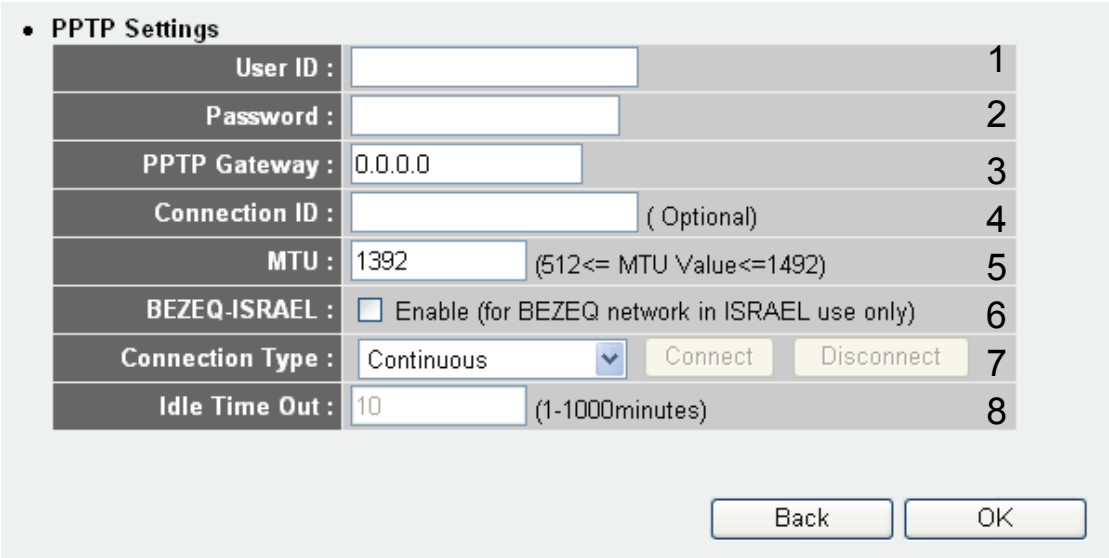
PPTP requires two kinds of settings: WAN interface setting (setup IP address) and PPTP setting (PPTP user name and password). Here we start with the WAN interface setting:



Select how you obtain an IP address from your service provider here. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to the 'Cable Modem' section above), or 'Use the following IP address' (i.e., static IP address).

WAN interface settings must be correctly set or the Internet connection will fail even if the PPTP settings are correct. Contact your Internet service provider if you don't know how you should fill in these fields.

Go to PPTP settings section next.



Items and meanings:

User ID (1): *Enter the user ID (user name) assigned by your Internet service provider here.*

Password (2): *Enter the password assigned by your Internet service provider here.*

PPTP Gateway (3): *Enter the IP address of the PPTP gateway assigned by your Internet service provider here.*

Connection ID (4): *Enter the connection ID here. This is optional and you can leave it blank.*

MTU (5): *Specify the MTU value of your network connection here. Use the default value unless your ISP specifies otherwise.*

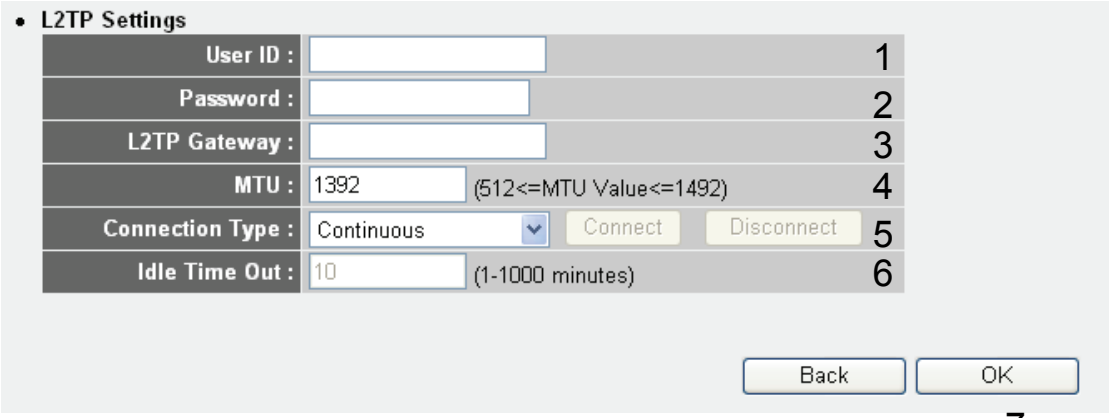
BEZEQ-ISRAEL (6): *If you are connecting to the BEZEQ network in Israel, you need to enable this function.*

Connection type (7): *Select the Internet connection type you wish to use. Refer to section 2-5-3 for detailed descriptions.*

Idle Time Out (8): *Enter the idle time out of the Internet connection you wish to use, and refer to section 2-5-3 for detailed descriptions.*

Click 'OK' (9) to save the settings and 'Back' if you want to go back to the previous menu.

2-5-5 Setup procedure for 'L2TP':



Items and meanings:

User ID (1): *Enter the user ID (user name) assigned by your Internet service provider here.*

Password (2): *Enter the password assigned by your Internet service provider here.*

L2TP Gateway (3): *Enter the IP address of the L2TP gateway assigned by your Internet service provider here.*

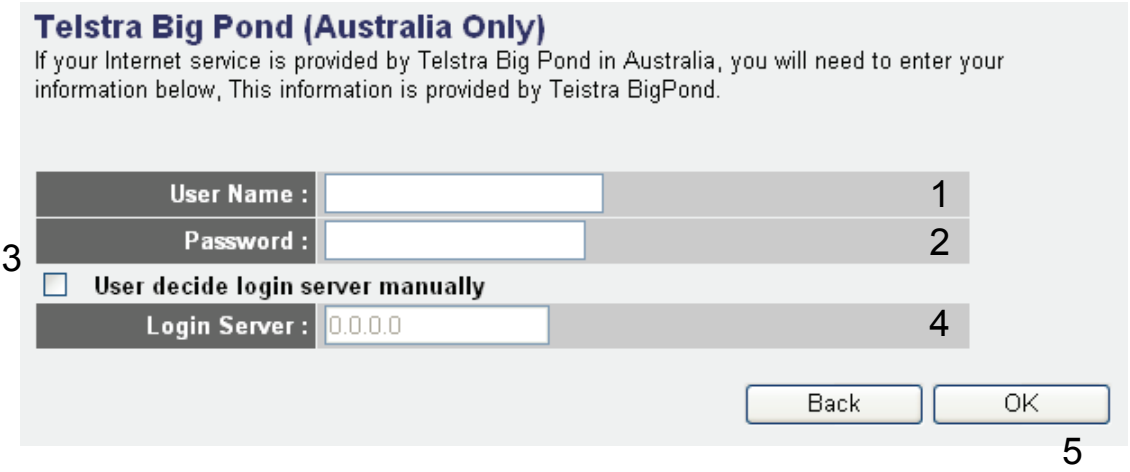
MTU (4): *Specify the MTU value of your network connection here. Use default value unless your ISP specifies otherwise.*

Connection type (5): *Select the Internet connection type you wish to use; refer to section 2-5-3 for detailed descriptions.*

Idle Time Out (6): *Enter the idle time out of the Internet connection you wish to use, and refer to section 2-5-3 for detailed descriptions.*

Click 'OK' (7) to save the settings and 'Back' if you want to go back to the previous menu.

2-5-6 Setup procedure for 'Telstra Big Pond':



This setting only works when you're using Telstra Big Pond's network service in Australia. You need to input:

Items and meanings:

User Name (1): *Enter the user name assigned by Telstra.*

Password (2): *Enter the password assigned by Telstra.*

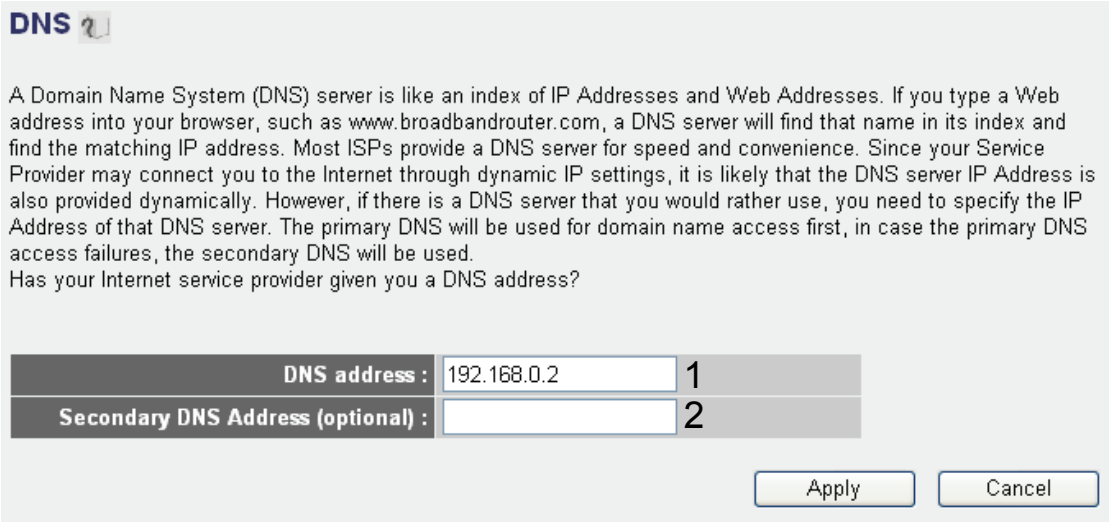
User device login server manually (3): *Check this box to choose the login server by yourself.*

Login Server (4): *Enter the IP address of login server here.*

When you finish with all settings, click 'OK' (5); if you want to go back to previous menu, click 'Back'.

2-5-7 Setup procedure for 'DNS':

If you select '*Dynamic IP*' or '*PPPoE*' as the Internet connection method, the ISP typically assigns the DNS Server information to the router. However, if you have a preferred DNS server, use a static IP address or your service provider didn't assign the IP address of the DNS server for any reason, you can input the IP address of the DNS server here.

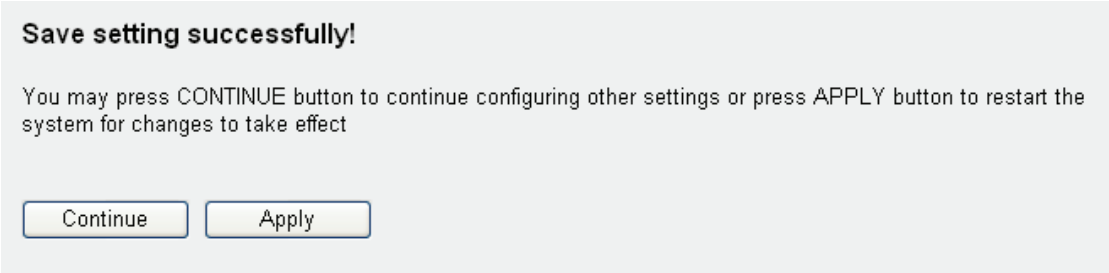

DNS
A Domain Name System (DNS) server is like an index of IP Addresses and Web Addresses. If you type a Web address into your browser, such as www.broadbandrouter.com, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since your Service Provider may connect you to the Internet through dynamic IP settings, it is likely that the DNS server IP Address is also provided dynamically. However, if there is a DNS server that you would rather use, you need to specify the IP Address of that DNS server. The primary DNS will be used for domain name access first, in case the primary DNS access failures, the secondary DNS will be used.
Has your Internet service provider given you a DNS address?
DNS address :
192.168.0.2
1
Secondary DNS Address (optional) :
2
Apply
Cancel
3

Items and meanings:

DNS Address (1):	*Enter the IP address of the DNS server provided by your service provider.*
Secondary DNS Address (2):	*Enter the IP address of the secondary DNS server provided by your service provider. This is optional.*

NOTE: Only IP address can be entered here; *DO NOT* use the hostname of the DNS server! (i.e., only numeric characters and dots are accepted)
10.20.30.40…… Correct
dns.serviceprovider.com…….. Incorrect

Click 'Apply' (3) to save the settings and 'Cancel' to remove the information entered.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

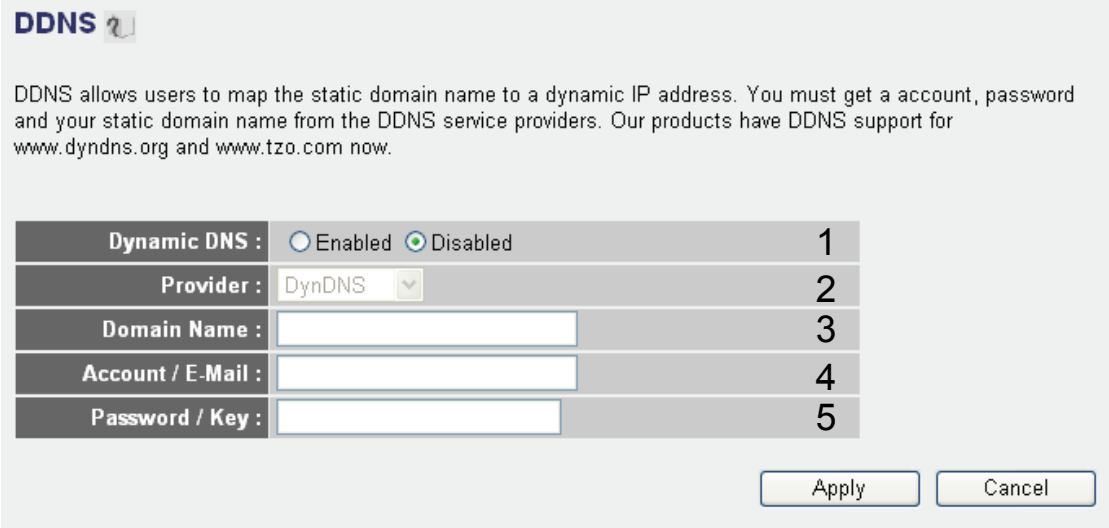
2-5-8 Setup procedure for 'DDNS':

DDNS (Dynamic DNS) is an IP-to-Hostname mapping service for those Internet users who don't have a static (fixed) IP address. It will be a problem when a user wants to provide services to other users on the Internet, because their IP addresses will vary every time they connect, and they will not be able to know the IP address they're using at a certain time.

This router supports the DDNS service of several service providers, for example:

DynDNS (http://www.dyndns.org)
TZO (http://www.tzo.com)

Go to one of the DDNS service provider's Webpages listed above, and get a free DDNS account using the instructions on their Web page.



Items and meanings:

Dynamic DNS (1): *If you want to enable the DDNS function, select 'Enabled'; otherwise select 'Disabled'.*

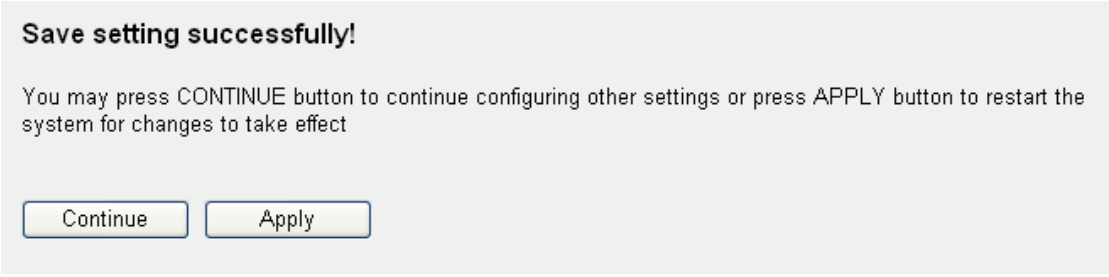
Provider (2): *Select your DDNS service provider here.*

Domain Name (3): *Input the domain name you've obtained from DDNS service provider.*

Account / E-Mail (4): *Input the user account of your DDNS registration.*

Password / Key (5): *Input the DDNS service password or key.*

Click 'Apply' (6) to save the settings and 'Cancel' to remove the information entered.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-6 LAN Configuration

This section deals with the IP Address settings of the local network. Normally there is no need to make any changes here. The default values work fine for most applications; you can skip this chapter and go directly to 2-7 WLAN configuration.

There are two ways to assign IP addresses to computers: static IP address (set the IP address for every computer manually), and dynamic IP address (IP address of computers will be assigned by the router automatically). It's recommended for most of the computers to use a dynamic IP address, as it will save a lot of time when setting IP addresses for every computer, especially when there are a lot of computers in your network. For servers and network devices which will provide services to other computer and users that come from the Internet, a static IP address should be used, so other computers can locate the server.

Suggestions on IP address numbering plan:

If you have no idea how to define an IP address plan for your network, here are some suggestions.

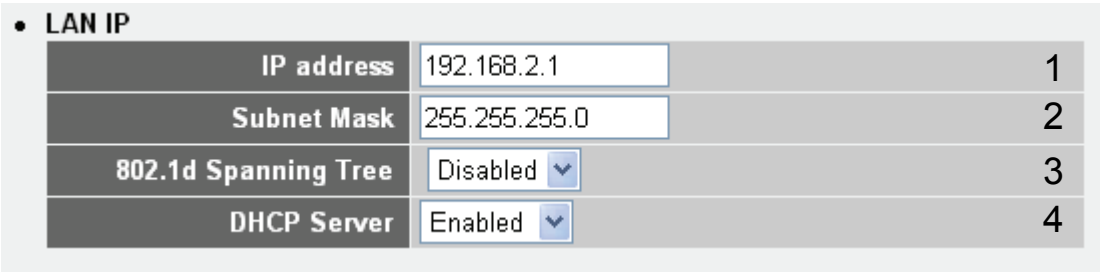
1. **A valid IP address has 4 fields: a.b.c.d for most home and company users, it's suggested to use 192.168.c.d, where c is an integer between 0 and 254, and d is an integer between 1 and 254. This router is able to work with up to 253 clients, so you can set the 'd' field of the IP address of the router as 1 or 254 (or any number between 1 and 254), and pick a number between 0 and 254 for field 'c'.**
2. **In most cases, you should use '255.255.255.0' as the subnet mask, which allows up to 253 clients (this also meets the router's capability of working with up to 253 clients).**
3. **For all servers and network devices which will provide services to other people (like Internet service, print service, and file service), they should use a static IP address. Give each of them a unique number between 1 and 253, and maintain a list, so everyone can locate those servers easily.**
4. **For computers which are not dedicated to providing specific service to others, they should use a dynamic IP address.**

If you don't really understand the descriptions listed above, don't worry! We will provide recommended setup values below.

Follow the following instructions to set wired LAN parameters:

Click the 'LAN' menu on the left of the Web management interface. There are three setup groups here: 'LAN IP', 'DHCP Server', and 'Static DHCP Leases Table'. Here are setup instructions for each of them:

2-6-1 LAN IP section:



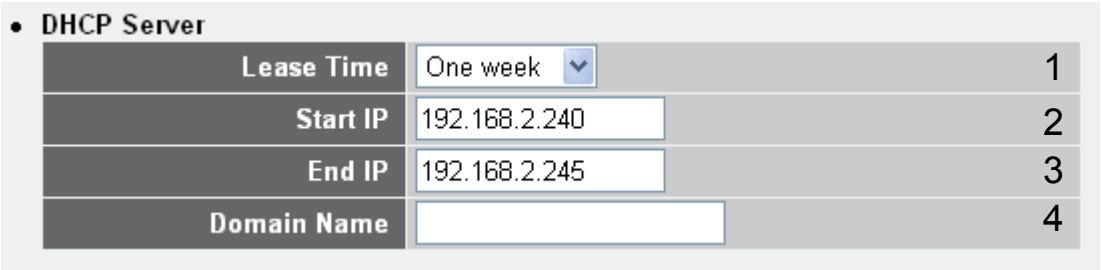
Items and meanings:

IP address (1):	*Enter the IP address of this router.*
Subnet Mask (2):	*Enter the subnet mask for this network.*
802.1d Spanning Tree (3):	*If you wish to activate the 802.1d spanning tree function, select 'Enabled' for setup item '802.1d Spanning Tree', or set it to 'Disabled'.*
DHCP Server (4):	*If you want to activate the DHCP server function of this router, select 'Enabled', or set it to 'Disabled'.*

Recommended values if you don't know what to enter:

IP Address: 192.168.2.1
Subnet Mask: 255.255.255.0
802.1d Spanning Tree: Disabled
DHCP Server: Enabled

2-6-2 DHCP Server:



These settings are only available when 'DHCP Server' in the 'LAN IP' section is 'Enabled', and here are descriptions for the setup items:

Lease Time (1):	*Choose a lease time (the duration that every computer can keep a specific IP address) from dropdown menu of every IP address assigned by this router.*
Start IP (2):	*Enter the start IP address of the IP range.*
End IP (3):	*Enter the end IP address of the IP range.*
Domain Name (4):	*If you wish, you can also input the domain name for your network. This is optional.*

Recommended values if you don't know what to enter:

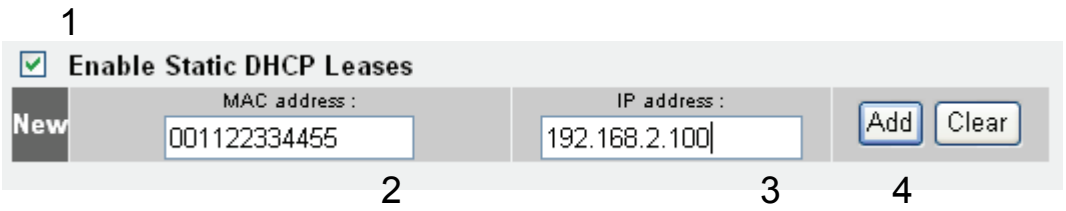
Lease Time: Two Weeks (or 'Forever', if you have fewer than 20 computers)
Start IP: 192.168.2.100
End IP: 192.168.2.200
Domain Name: (leave it blank)

NOTE:
1. The number of the last field ('d' field) of 'End IP' must be greater than 'Start IP', and can not be the same as the router's IP address.
2. The former three fields of the IP address of 'Start IP', 'End IP', and 'IP Address of 'LAN IP' section ('a', 'b', and 'c' fields) should be the same.
3. These settings will affect wireless clients, too.

2-6-3 Static DHCP Leases Table:

This function allows you to assign a static IP address to a specific computer forever, so you don't have to set the IP address for a computer, but you can still enjoy the benefit of using a DHCP server. A maximum of 16 static IP addresses can be assigned here.

(If you set 'Lease Time' to 'forever' in the 'DHCP Server' section, you can also assign an IP address to a specific computer permanently; however, you will not be able to assign a certain IP address to a specific computer, since IP addresses will be assigned in random order this way).

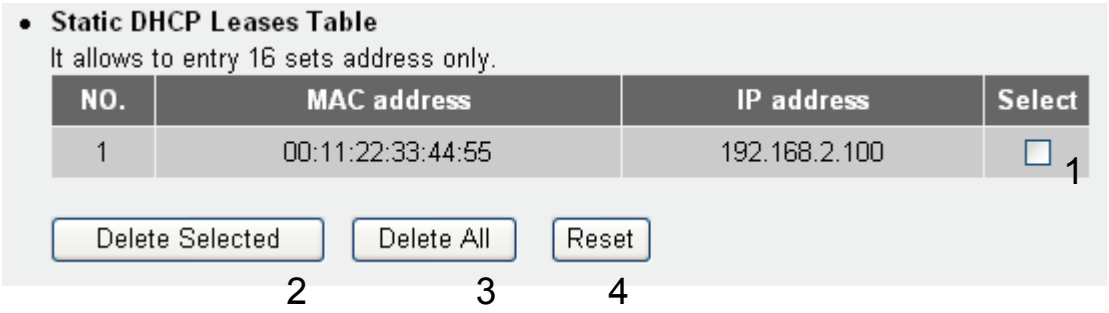


Items and meanings:

Enable Static DHCP Leases (1):	*Check this box to enable this function, or uncheck it to disable this function.*
MAC Address (2):	*Input the MAC address of the computer or network device (a total of 12 characters, with numerals from 0 to 9, and characters from a to f, like '001122aabbcc').*
IP address (3):	*Input the IP address you want to assign to this computer or network device.*
'Add' (4):	*After you input the MAC address and IP address pair, click this button to add the pair to the static DHCP leases table.*

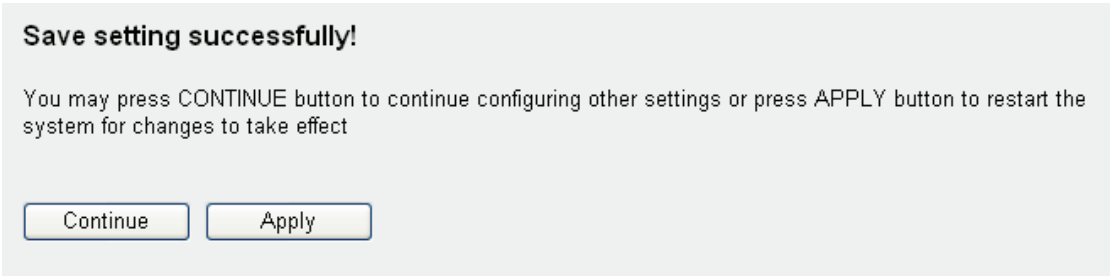
If you want to remove all the characters you just entered, click 'Clear'.

After you click 'Add', the MAC address and IP address mapping will be added to the 'Static DHCP Leases Table' section.



If you want to delete a specific item, check the 'Select' box of a MAC address and IP address mapping (1), then click the 'Delete Selected' button (2); if you want to delete all mappings, click 'Delete All' (3). If you want to deselect all mappings, click 'Reset' (4).

Click 'Apply' to save the settings.

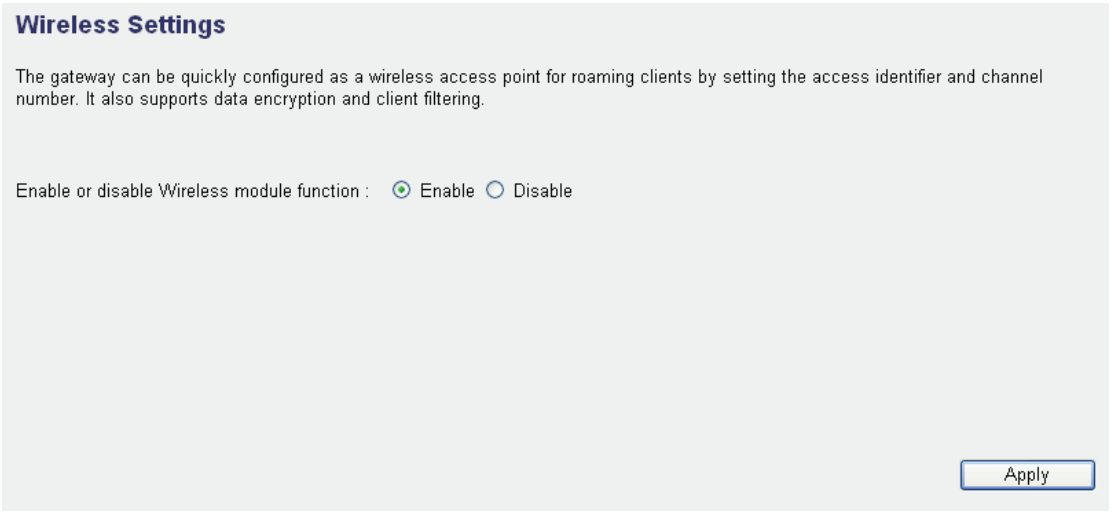

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

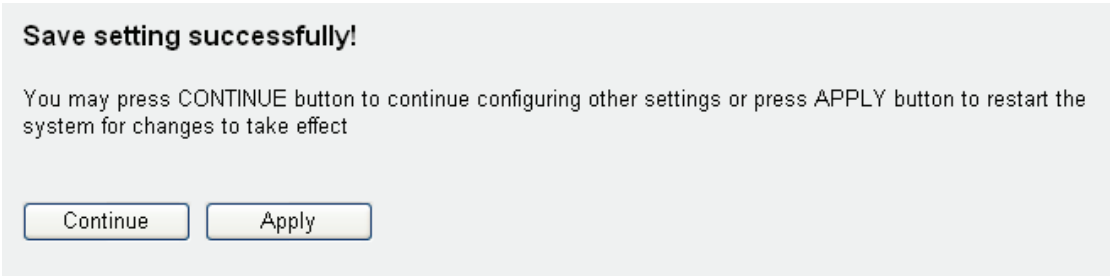
2-7 **Wireless LAN Configuration**

If your computer, PDA, game console, or other network devices equipped with a wireless network interface, you can use the wireless function of this router to connect to the Internet and share resources with other computers on your network. We strongly recommend you use the built-in security functions to protect your network from intruders.
The following pages describe the wireless configuration.

Click the 'Wireless' menu on the left of the Web management interface to open the wireless settings page. Here you can enable or disable the wireless radio of the router. By default, the wireless functionality is enabled. Click the 'Apply' button to save your settings.


Wireless Settings
The gateway can be quickly configured as a wireless access point for roaming clients by setting the access identifier and channel number. It also supports data encryption and client filtering.
Enable or disable Wireless module function :
Enable
Disable
Apply

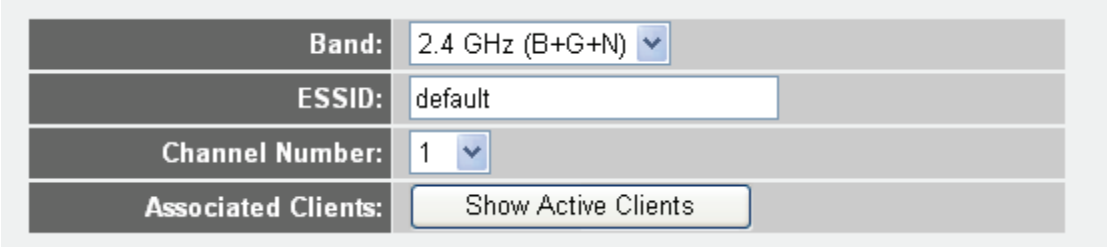
Click 'Apply' to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-7-1 Basic Wireless Settings

Click the 'Wireless' menu on the left of the Web management interface, then click 'Basic Settings' and the following screen appears:



Band:

2.4 GHz (B)	2.4 GHz band, only allows an 802.11b wireless network client to connect to this router (maximum transfer rate of 11Mbps).
2.4 GHz (N)	2.4 GHz band, only allows an 802.11n wireless network client to connect to this router (maximum transfer rate of 300Mbps).
2.4 GHz (B+G)	2.4 GHz band, only allows a802.11b and 802.11g wireless network clients to connect to this router (maximum transfer rate 11Mbps for 802.11b clients, and maximum 54Mbps for 802.11g clients).
2.4 GHz (G)	2.4 GHz band, only allows an 802.11g wireless network client to connect to this router (maximum transfer rate of 54Mbps).
2.4 GHz (B+G+N)	2.4 GHz band, allows 802.11b, 802.11g, and 802.11n wireless network clients to connect to this router (maximum transfer rate of 11 Mbps for 802.11b clients, maximum of 54 Mbps for 802.11g clients, and a maximum of 300 Mbps for 802.11n clients).

NOTE:
Choose '2.4 GHz (B+G+N) for maximum wireless client compatibility.

ESSID: *Enter the name for your wireless network. You may choose to leave the default value, but you can adjust the value to make identification in areas with different Wireless networks easier; e.g., to differentiate your wireless network from that of your neighbors.*

Channel Number (4): Select a channel from the dropdown list of 'Channel Number'. Available channel numbers are 1 to 13 for European countries, 1 to 11 for USA. You can choose any of these channels.

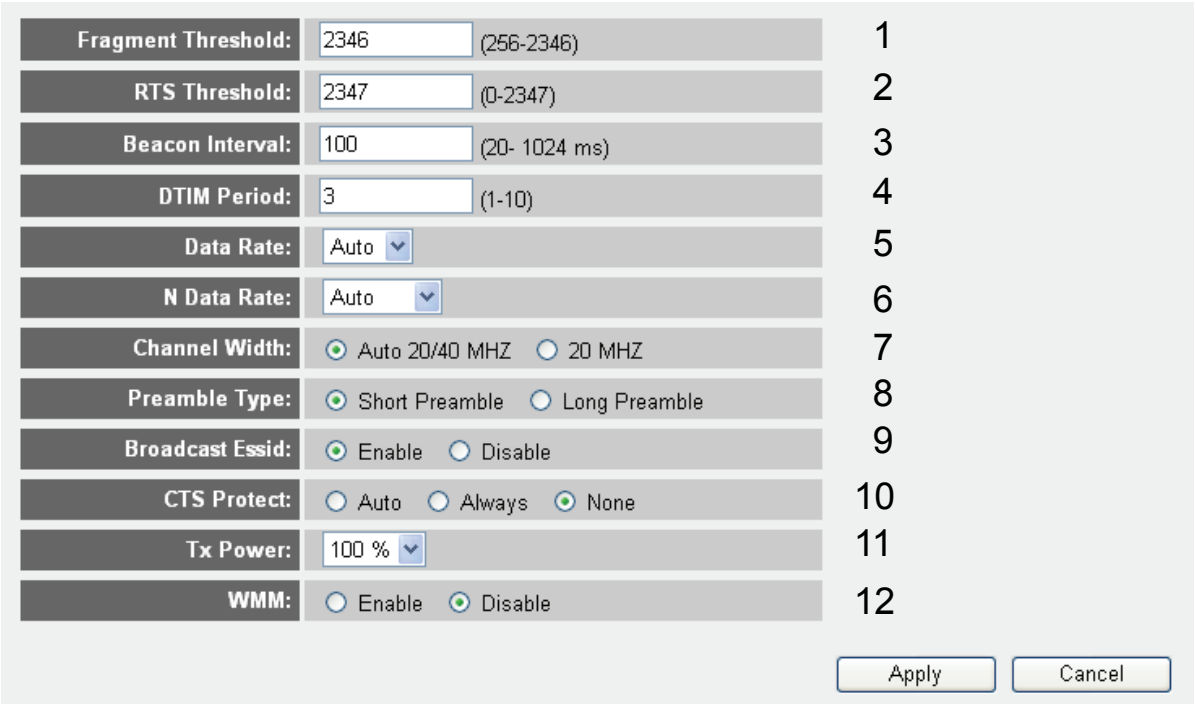
Associated Clients (5): Click the 'Show Active Clients' button to see the status of all active wireless stations that are connected to the access point.

You can try to change the channel number if you think the data transfer rate is too slow. There could be interference from other wireless networks in the area using the same channel, and the cross-talk between the two networks reduces the wireless data transfer rate. Ideally, you want
to set your channel to a value which leaves at least two channels spaced between the two networks, three is even better.
Example:
The wireless network of the neighbor runs on Channel 3.
You should set your channel to at least Channel 6.

It is also possible for a handheld phone in your household to cause interference with the wireless signal. In such a case, changing the channel by two or three numbers often resolves the problem.

2-7-2 Advanced Wireless Settings

This chapter describes advanced wireless settings. Normally there is no need to make any changes here. Unless you know that your network requires special settings, you can skip this chapter and go straight to '2-7-3 Wireless Security'.


Fragment Threshold: 2346 (256-2346) 1
RTS Threshold: 2347 (0-2347) 2
Beacon Interval: 100 (20- 1024 ms) 3
DTIM Period: 3 (1-10) 4
Data Rate: Auto 5
N Data Rate: Auto 6
Channel Width: Auto 20/40 MHZ 20 MHZ 7
Preamble Type: Short Preamble Long Preamble 8
Broadcast Essid: Enable Disable 9
CTS Protect: Auto Always None 10
Tx Power: 100 % 11
WMM: Enable Disable 12
Apply
Cancel

Items and meanings:

Fragment Threshold (1):	*Set the Fragment threshold of wireless radio.* ***Do not modify the default value if you don't know what it should be, default value is 2346.***
RTS Threshold (2):	*Set the RTS threshold of wireless radio.* ***Do not modify the default value if you don't know what it should be, default value is 2347.***
Beacon Interval (3)	*Set the beacon interval of wireless radio.* ***Do not modify the default value if you don't know what it should be, default value is 100.***

DTIM Period(4): *Set the DTIM period of the wireless radio.* ***Do not modify the default value if you don't know what it should be, default value is 3.***

Data Rate(5): *Set the wireless data transfer rate to a specific value. Since most of wireless devices will negotiate with each other and pick a proper data transfer rate automatically,* ***it's not necessary to change this value unless you know what will happen after modification.***

N Data Rate(6): *Same as above, but only for 802.11n clients.*

Channel Width (7): *Set the channel width of wireless radio.* ***Do not modify default the value if you don't know what it should be, default setting is 'Auto 20/40 MHz'.***

Preamble Type (8): *Set the type of preamble,* ***do not modify default value if you don't know what it is, default setting is 'Short Preamble'.***

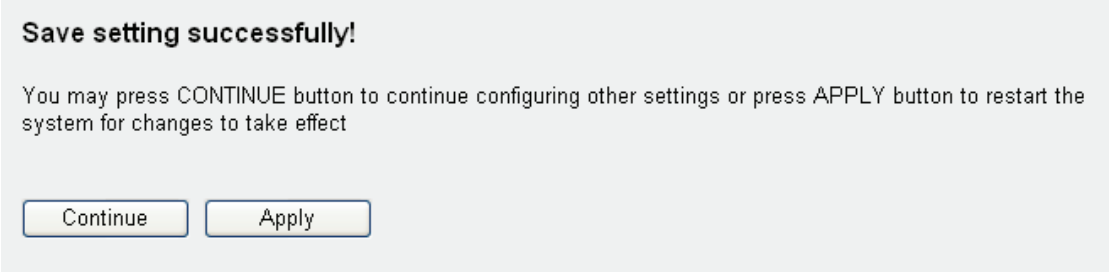
Broadcast ESSID (9): *Decide if the wireless router will broadcast its own ESSID or not. You can hide the ESSID of your wireless router (set the option to 'Disable'), so only people who know the ESSID of your wireless router can connect to it.*

CTS Protect (10): *Enabling this setting will reduce the chance of radio signal collisions between 802.11b and 802.11g/n wireless access points. It's recommended to set this option to 'Auto' or 'Always'. However, if you set to 'None', your wireless router should be able to work fine, too.*

Tx Power (11): *You can set the output power of the wireless radio. Unless you're using this wireless router in a really big space, you may not have to set output power to 100%.*

WMM (12):	*Short for Wi-Fi MultiMedia, it will enhance the data transfer performance of multimedia contents when it's being transferred over wireless network.* ***If you don't know what it is or not sure if you need it, it's safe to set this option to 'Enable'. The default setting is 'Disable'.***

Click 'Apply' to save the changes.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-7-3 Wireless Security

Unlike the previous chapter, which dealt with advanced settings you normally don't need to change, this chapter is of great importance. It explains how you can protect your wireless network from unauthorized access.

It's very important to program the wireless security settings properly! If you don't, freeloaders may use your Internet connection without your knowledge or, worst case, hackers may gain access to your network to steal data; e.g., bank details, credit card information, etc.

Click 'Security Settings' in the 'Wireless' menu on the left, then follow the instructions below to set the wireless security settings:

Please select an encryption method from 'Encryption' dropdown menu. There are four options:

2-7-3-1 Disable wireless security

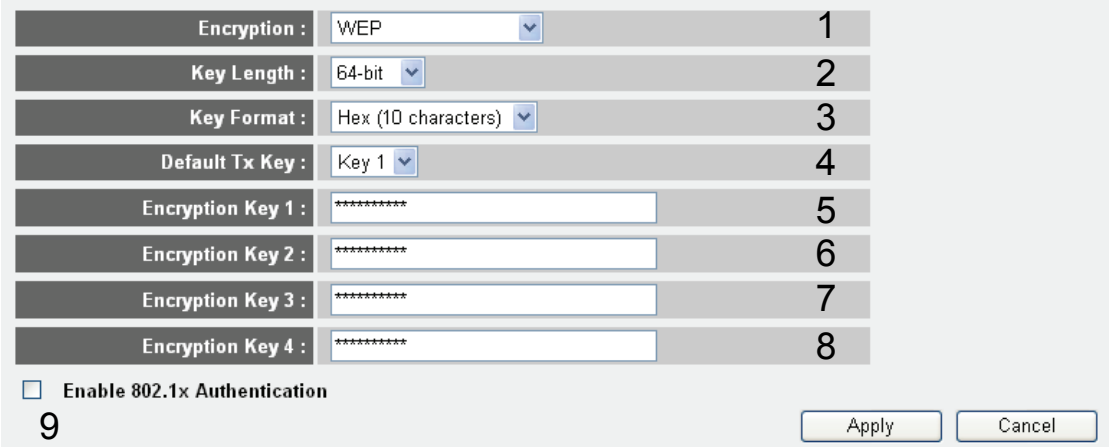
When you select this mode, data encryption is disabled, and every wireless device in proximity will be able to connect your wireless router if no other security measure is enabled (like MAC address access control - see section 2-7-4, or disable ESSID broadcast).

Only use this option when you really want to allow everyone to use your wireless router, and you don't care if someone reads the data you transfer over the network without your consent.

2-7-3-2 WEP - Wired Equivalent Privacy

WEP encryption is an outdated method to secure your network. It does not meet the security standards of modern data encryption.
It is not recommended to use WEP, unless you use WLAN adapters or WLAN networking devices which do not support WPA/WPA2 encryption.
If your WLAN card supports WPA/WPA2, you can skip this chapter and go straight to chapter *2-7-3-3 Wi-Fi Protected Access (WPA)*.

When you select this mode, the wireless router will use WEP encryption, and the following setup menu will be shown on your Web browser:



Items and meanings:

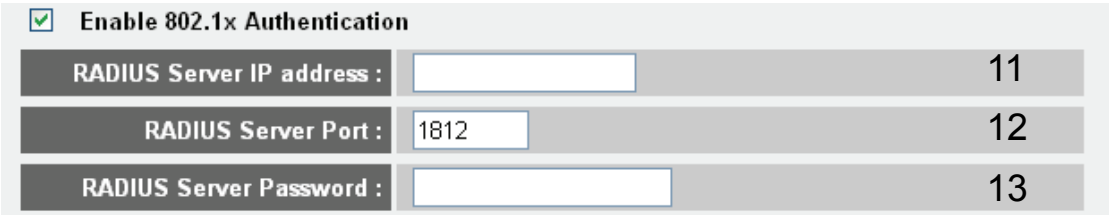
Key Length (2): *There are two types of WEP key length: 64-bit and 128-bit. Using '128-bit' is safer than '64-bit', but will reduce some data transfer performance.*

Key Format (3): *There are two types of key format: ASCII and Hex. When you select a key format, the number of characters of the key will be displayed. For example, if you select '64-bit' as the key length, and 'Hex' as the key format, you'll see the message at the right of 'Key Format' is 'Hex (10 characters), which means the length of WEP key is 10 characters.*

Default Tx Key (4): *You can set up to four sets of WEP keys, and you can decide which key is being used by default here.* ***If you don't know which one you should use, select 'Key 1'.***

Encryption Key 1 to 4 (5-8): *Input WEP key characters here. The number of characters must be the same as the number displayed n the 'Key Format' field. You can use any alphanumerical characters (0-9, a-z, and A-Z) if you select 'ASCII' key format. If you select 'Hex' as key the format, you can use characters 0-9, a-f, and A-F. You must enter at least one encryption key here, and if you entered multiple WEP keys, they should not be same.*

Enable 802.1x Authentication (9): *IEEE 802.1x is an authentication protocol. Every user must use a valid account to login to this wireless router before accessing the wireless LAN. The authentication is processed by a RADIUS server. This mode authenticates the user by IEEE 802.1x, but it does not encrypt the data during communication. If there is a RADIUS server in your environment, enable this function. Check this box and another sub-menu will appear:*



RADIUS Server IP address (11): *Enter the IP address of the radius server here.*

RADIUS Server Port (12): *Enter the port number of the radius server here.*

RADIUS Server Password (13): *Enter the port number of the radius password here.*

Some examples of WEP key
(Don't use these examples; use your own!):

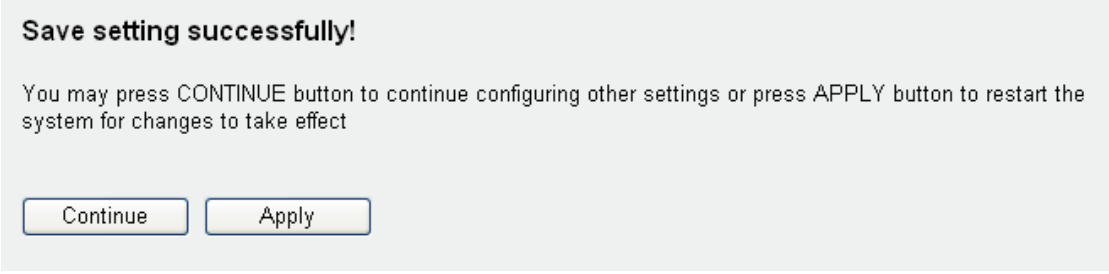
ASCII (5 characters): pilot
ASCII (13 characters): digitalFAMILY
Hex (10 characters): 287d2aa732
Hex (26 characters): 9284bcda8427c9e036f7abcd84

To improve the security level, do not use words which can be found in a dictionary or are too easy to remember! ('pilot' above is a bad example and is just intended to show you how a WEP key looks). Wireless clients will remember the WEP key, so you only have to input the WEP key for a wireless client once. It's worth using a complicated WEP key to improve security level.

Note: We recommend using 128-bit encryption and ASCII as the key format.

Then you enter your WEP key consisting of 13 characters into the configuration and save the settings. Now all Wireless clients will have to enter those 13 characters to gain access to your wireless network.

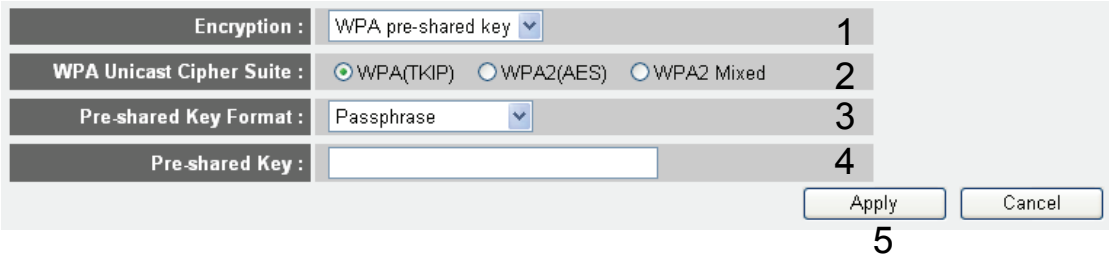
Click 'Apply' to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-7-3-3 Wi-Fi Protected Access (WPA):

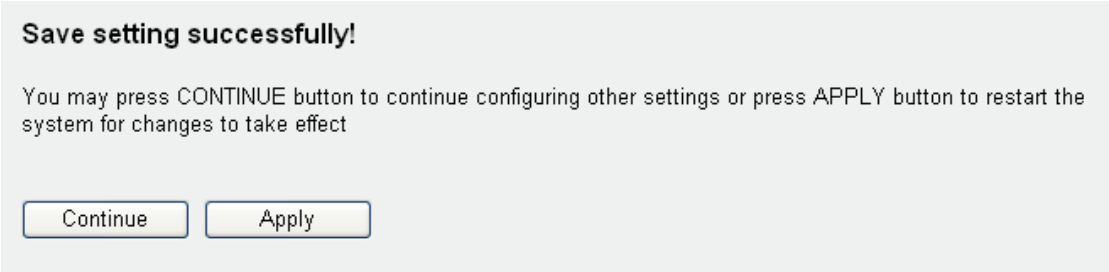
When you select this mode, the wireless router will use WPA encryption, and the following setup menu will be displayed.



Items and meanings:

WPA Unicast Cipher Suite (2):	*Select a type of WPA cipher suite. Available options are: WPA (TKIP), WPA2 (AES), and WPA2 Mixed. You can select one of them, but you have to make sure your wireless clients support the cipher you selected.*
Pre-shared Key Format (3):	*Select the type of pre-shared key. You can select Passphrase (8 or more alphanumerical characters, up to 63), or Hex (64 characters of 0-9, and a-f).*
Pre-shared Key (4):	*Enter the WPA passphrase here.* ***It's not recommended to use a word that can be found in a dictionary for security reasons.***

Click 'Apply' button (5) to save the settings and the following message will be displayed:

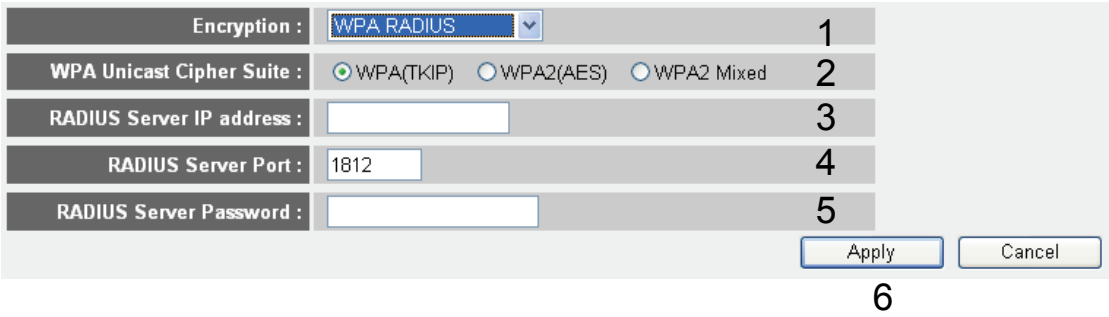

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

NOTE: Some wireless clients (especially those manufactured before 2003) only support WEP or WPA (TKIP) cipher. A driver upgrade would be needed for those clients to be able to use WPA and WPA2 encryption.

2-7-3-4 WPA RADIUS:

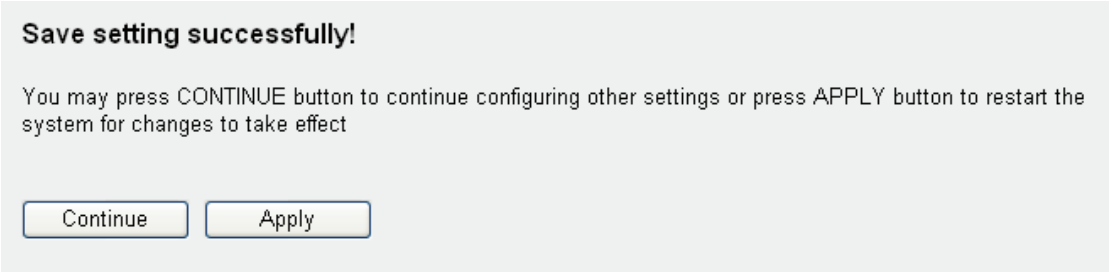
If you have a RADIUS server, this router can work with it and provide safer wireless authentication.



Items and meanings:

WPA Unicast Cipher Suite:	*Select a type of WPA cipher suite. Available options are: WPA (TKIP), WPA2 (AES), and WPA2 Mixed. You can select one of them, but you have to make sure that your wireless client or network card supports the cipher you selected.*
RADIUS Server IP address (3):	*Enter the IP address of your Radius authentication server here.*
RADIUS Server Port (4):	*Enter the port number of your Radius authentication server here.* ***The Default setting is 1812.***
RADIUS Server Password (5):	*Enter the password of your Radius authentication server here.*

Click 'Apply' (6) to save the settings.

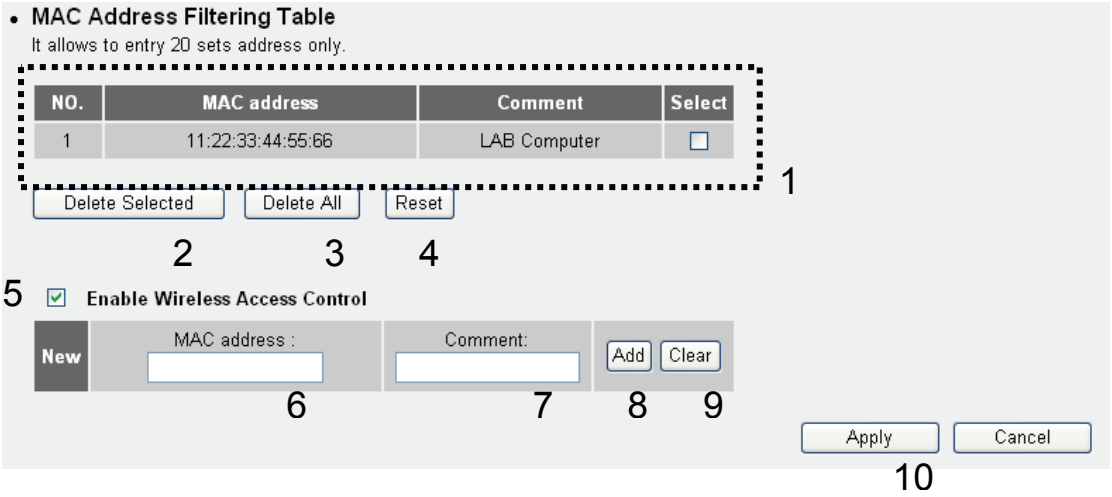

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-7-4 Wireless Access Control

This function helps to prevent unauthorized users from connecting to your wireless router; only those wireless devices who have the MAC address you assigned here can gain access to your wireless router. The MAC address is a unique hardware identification number which every network adapter carries. You can use this function in combination with data encryption (WPA, WPA2 or WEP) to create an additional layer of security for your wireless network.

Up to 20 MAC addresses can be assigned using this function. Click 'Wireless' menu on the left of the Web management interface, then click 'Access Control', and the following message will be displayed on your Web browser:



All allowed MAC addresses will be displayed in 'MAC Address Filtering Table' (1). Here are the items and descriptions:

Delete Selected (2): *If you want to delete a specific MAC address entry, check the Select' box of the MAC address you want to delete, then click the 'Delete Selected' button. (You can select more than one MAC address at a time).*

Delete All (3): *If you want to delete all MAC addresses listed here, click 'Delete All'.*

Reset (4): *You can also click 'Reset' to de-select all MAC addresses.*

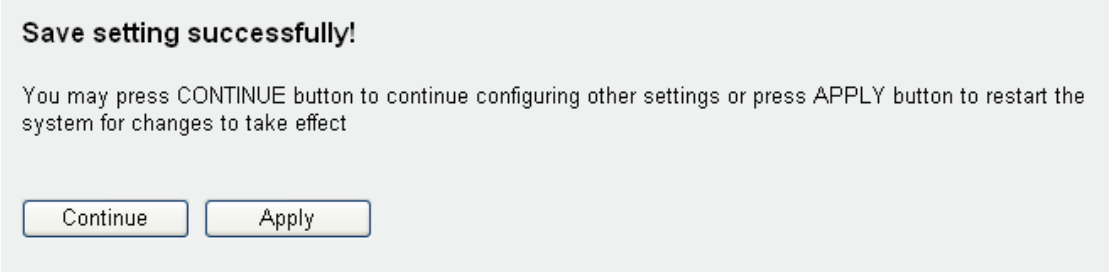
Enable Wireless Access Control (5): *To enforce MAC address filtering, you have to check 'Enable Wireless Access Control'. When this item is unchecked, the wireless router will not filter the MAC addresses of wireless clients.*

MAC Address (6): *Input the MAC address of your wireless devices here without special characters. If the MAC address label of your wireless device indicates 'aa-bb-cc-dd-ee-ff' or 'aa:bb:cc:dd:ee:ff', just input 'aabbccddeeff'.*

Comment (7): *You can input any text here as the comment of this MAC address, like 'Company Notebook'. You can*

	input up to 16 alphanumerical characters here. This is optional and you can leave it blank; however, it's recommended to use this field so you can identify the MAC addresses later.
Add (8):	*Click the 'Add' button to add the MAC address and associated comment to the MAC address filtering table.*
Clear (9):	*Click 'Clear' to remove the value you input in MAC address and comment field.*

Click 'Apply' *(10)* to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

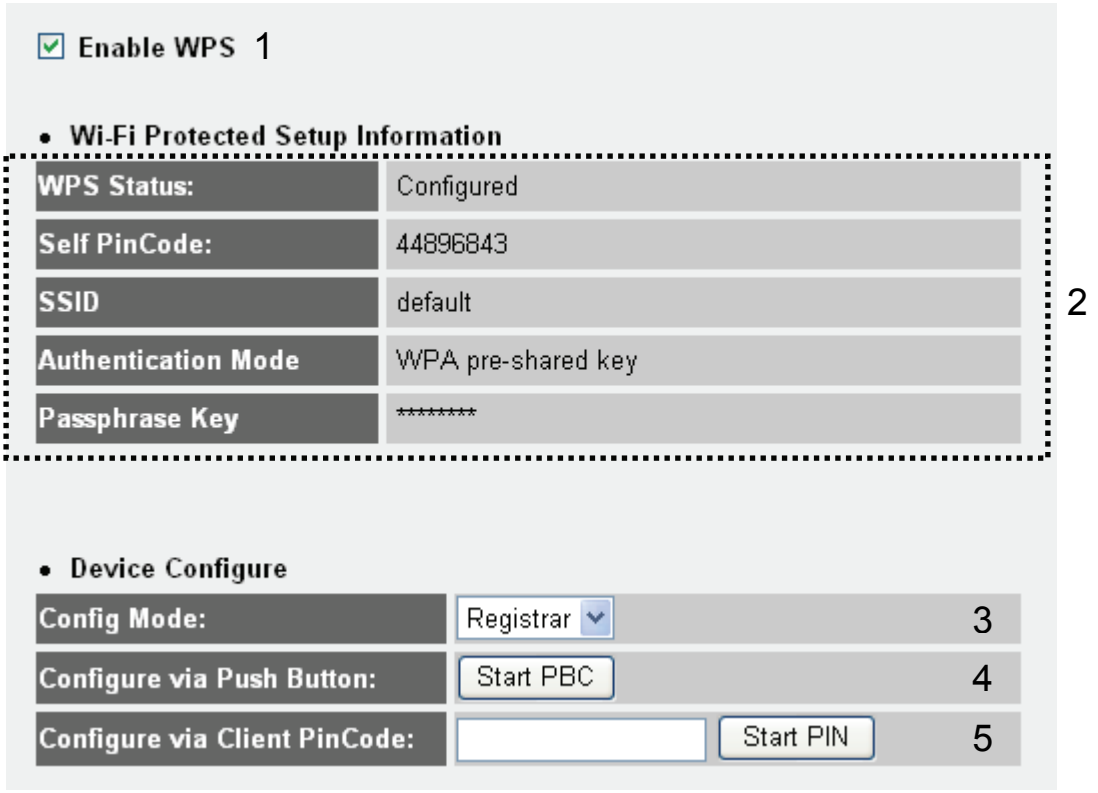
Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

2-7-5 Wi-Fi Protected Setup (WPS)

Wi-Fi Protected Setup (WPS) is the simplest way to build a connection between wireless network clients and this wireless router. You don't have to select an encryption mode and input a long encryption passphrase every time you need to setup a wireless client: You only have to press a button on a wireless client and this wireless router, and the WPS will do the rest for you.

This wireless router supports two types of WPS: Push-Button Configuration (PBC), and PIN code. If you want to use PBC, you have to push a specific button on the wireless client to start the WPS mode, and switch this wireless router to WPS mode, too. You can push the Reset/WPS button of this wireless router, or click the 'Start PBC' button in the Web configuration interface to do this. If you want to use PIN code, you have to know the PIN code of the wireless client and switch it to WPS mode, then provide the PIN code of the wireless client you wish to connect to this wireless router. The detailed instructions are:

Click the 'Wireless' menu on the left of the Web management interface, then click 'WPS', and the following message will be displayed on your Web browser:



Items and meanings:

Enable WPS (1) — *Check this box to enable the WPS function. Uncheck it to disable WPS.*

Wi-Fi Protected Setup Information (2) — *WPS-related system information will be displayed here.*

WPS Status: 'Configured' is displayed if the wireless security (encryption) function of this wireless router is properly set and 'Not configured' is shown if the WPS function has not been configured correctly – but you probably suspected as much.

Self PIN code: This is the WPS PIN code of this wireless router. This code is useful when you need to build a wireless connection by WPS with other WPS-enabled wireless devices.

	SSID: The SSID of this wireless router is shown here. *Authentication Mode: The wireless security authentication mode of this wireless router is shown here. If you don't enable the security function of the wireless router before WPS is activated, the router will auto-set the security to WPA (AES) and generate a set of passphrase keys for WPS connection.* *Passphrase Key: The wireless security key of the router is shown here.*
Config Mode (3)	*There are 'Registrar' and 'Enrollee' modes for the WPS connection. When 'Registrar' is enabled, the wireless clients will follow the router's wireless settings for a WPS connection. When 'Enrolle' mode is enabled, the router will follow the wireless settings of wireless client for a WPS connection.*
Configure via Push Button (4)	*Click 'Start PBC' to start a Push-Button style WPS setup procedure. This wireless router will wait for WPS requests from wireless clients for 2 minutes. The 'WLAN' LED on the wireless router will be on for 2 minutes when this wireless router is waiting for an incoming WPS request.*
Configure via client PinCode (5)	*Enter the PIN code of the wireless client you wish to connect, and click the 'Start PIN' button. The 'WLAN' LED on the wireless router will be on when this wireless router is waiting for an incoming WPS request.*

2-7-6 Security Tips for Wireless Networks

Here are some quick tips to help you improve the security level of your wireless network:

1. Never use simple words for the WPA/WEP encryption passphrase. A good password cannot be found in the dictionary and consists of characters, symbols and numbers.
   You should also refrain from using passwords which carry a personal meaning: names of pets, names or birthdays of a wife or husband etc. These are all bad choices for a password.

2. Use WPA over WEP whenever possible. WPA encryption, and especially WPA2 encryption, is much stronger than WEP encryption. If your wireless network adapters support WPA or WPA2, you should abandon WEP for good. Unless you don't care about network security, that is.

3. You can hide the ESSID of this router by setting the 'Broadcast ESSID' option (Advanced Wireless Settings page) to 'Disable'. Once the option is disabled, the router will no longer broadcast the SSID; thus, wireless clients in the area will not be able to see the wireless network in the list of available WLAN networks. Keep in mind that hiding the SSID will make it more complicated for wireless clients to join the network, and that is basically the idea. Instead of selecting the Wireless network from the list, the user now must manually enter the Wireless SSID, which will be difficult without knowing what it is. While this option offers additional protection, you should never rely on this mechanism as your only means of protection. A WPA encryption key remains highly recommended. Hiding the SSID of your Access Point is simply one additional step you can take.

4. Use the 'Access Control' function described in section 2-7-4, so people who are not in your list will not be able to connect to your network. If you don't have guest traffic, you normally know which computers access your network and you can specifically allow those computers and deny all the others.

5. Utilizing all three mechanisms (encryption, no SSID broadcast and MAC address filtering) offers the best protection against unauthorized access.

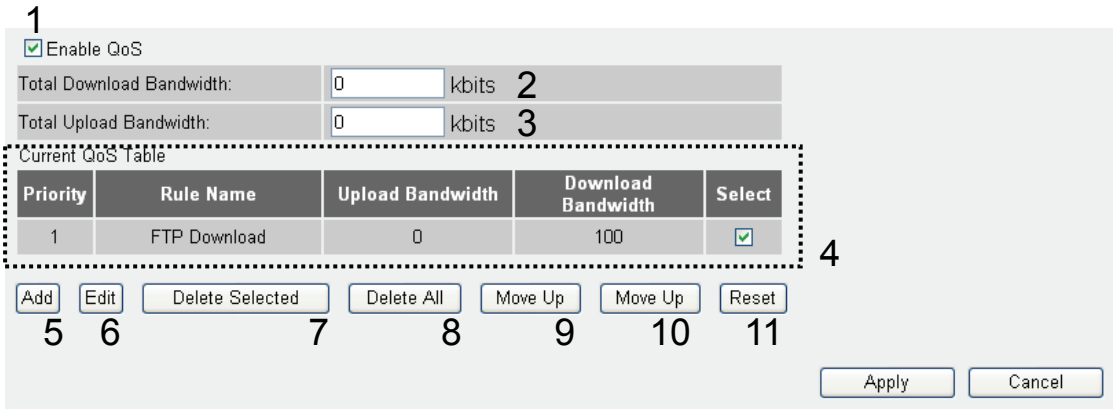
Chapter III Advanced Functions

3-1 Quality of Service (QoS)

Quality of service provides an efficient way for computers on the network to share the Internet bandwidth with a promised quality of Internet service. Without QoS, all computers and devices on the network compete with each other to get Internet bandwidth, and some applications which require guaranteed bandwidth (like video streaming and network telephone) are being affected negatively, resulting in the interruption of video / audio transfers. QoS allows you to limit the maximum bandwidth or grant a guaranteed bandwidth for a specific computer or network service port.

3-1-1 Basic QoS Settings

Click 'QoS' on the left of the Web management interface to display the screen below:



Items and meanings:

Enable QoS (1): *Check this box to enable the QoS function. Unselect this box if you don't want to enforce QoS bandwidth limitations.*

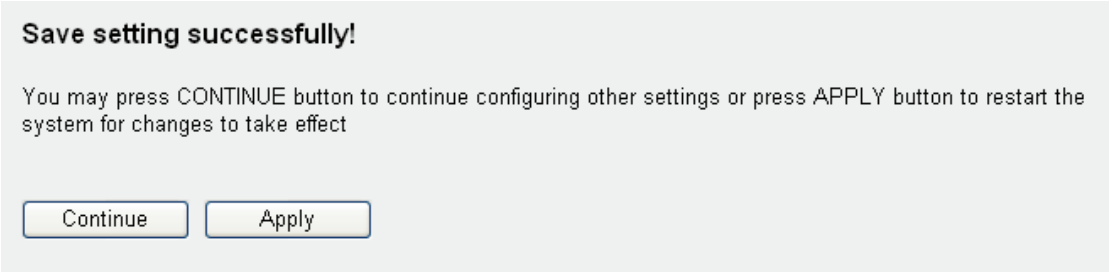
Total Download Bandwidth (2): *You can set the limit of total download bandwidth in kbits. To disable the download bandwidth limitation, input '0' here.*

Total Upload Bandwidth (3):	*You can set the limit of total upload bandwidth in kbits. To disable the upload bandwidth limitation, input '0' here.* *Both the Total Download and Total Upload bandwidth should be specified according to the maximum performance of your Internet service. If you are not sure about these numbers, you should contact your ISP. QoS can only be effective if accurate information is provided.*
Current QoS Table (4):	*All existing QoS rules are shown here.*
Add (5):	*Click the 'add' button to add a new QoS rules, see section 3-1-2 'Add a new QoS rule' below.*
Edit (6):	*If you want to modify the content of a specific rule, check the 'select' box of the rule you want to edit, then click the 'Edit' button.* ***Only one rule should be selected at a time!*** *If you didn't select a rule before clicking the 'Edit' button, you'll be prompted to add a new rule.*
Delete Selected (7):	*You can delete selected rules by clicking this button. You can select one or more rules to delete by checking the 'select' box of the rule(s) you want to delete.* ***If the QoS table is empty, this button is inaccessible.***
Delete All (8):	*By clicking this button, you can delete all rules currently in the QoS table.* ***If the QoS table is empty, this button is inaccessible.***
Move Up (9):	*You can raise the priority of the selected QoS rule by clicking this button.*

Move Down (10): *You can lower the priority of the selected QoS rule by clicking this button.*

Reset (11): *If you want to erase all values you just entered, click 'Reset'.*

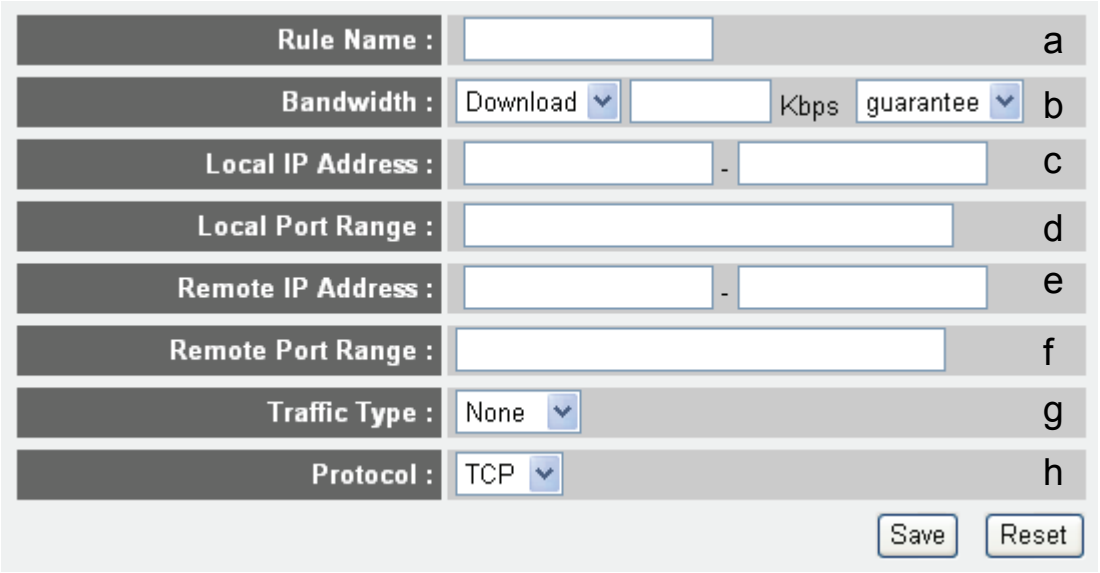
Click 'Apply' (12) to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-1-2 Add a new QoS rule

After you click the 'Add' button in the QoS menu, the following screen will appear:



i

Items and meanings:

Rule Name (a):	*Provide a name for the QoS rule (up to 15 alphanumerical characters; e.g, "VoIP Phone")*
Bandwidth (b):	*Set the bandwidth amount of the QoS rule. You have to select the data direction of this rule (Upload or Download), and the speed of bandwidth limitation in Kbps, then select the type of QoS: 'guarantee' (guaranteed usable bandwidth for this rule) or 'max' (set the maximum bandwidth for the application allowed by this rule).*
Local IP Address (c):	*Specify the local (source) IP address that will be affected by this rule. Enter the starting IP address in the left field, and input the end IP address in the right field to define a range of IP addresses, or just input the IP address in the left field to define a single IP address.*
Local Port Range (d):	*Enter the range of local (source) port numbers that should be affected by this rule. If you want to apply this rule on ports 80 to 90, enter 80-90; if you want to apply this rule only to a single port, just input the port number, like '80'.*
Remote IP Address: (e):	*Specify the remote (destination) IP address that should be affected by this rule. Enter the starting IP address in the left field, and input the end IP address in the right field to define a range of IP addresses, or just input the IP address in the left field to define a single IP address.*

Remote Port Range (f):	*Enter the range of remote (destination) port numbers that should be affected by this rule. If you want to apply this rule on ports 80 to 90, enter 80-90; if you want to apply this rule only to a single port, just input the port number, like '80'. If the remote (destination) IP address and /or port number is universal, just leave it blank.*
Traffic Type (g):	*Select the traffic type of this rule.* *Available options are None, SMTP, HTTP, POP3, and FTP. You can select a specific traffic type for this rule. If you want to make this rule an IP address based rule (apply the limitation on all traffic from / to the specified IP address / port number), select 'None'.*
Protocol (f):	*Select the protocol type of this rule.* *Available options are TCP and UDP. If you don't know what protocol your application uses, try 'TCP' first, and switch to 'UDP' if this rule doesn't seem to work.*

Click 'save' to add the new rule. It will appear in the current QoS table after that. Should an error message show up after you click 'save', you can try again, but fixing the problem first and then clicking 'Save' again will have a better chance of working.

If you want to erase all values you just entered, click 'Reset'.

3-2 Network Address Translation (NAT)

Network Address Translation (NAT, also known as Network Masquerading, Native Address Translation or IP Masquerading) is a technique of transceiving network traffic through a router that involves re-writing the source and/or destination IP addresses and usually also the TCP/UDP port numbers of IP packets as they pass through. Checksums (both IP and TCP/UDP) must also be rewritten to take account of the changes. Most systems using NAT do so in order to enable multiple hosts on a private network to access the Internet using a single public IP address (see gateway). Many network administrators find NAT a convenient technique and use it widely. In English: The router's NAT function allows the connection of multiple computers to one Internet line. NAT is enabled by default, and there is normally no need to change this.

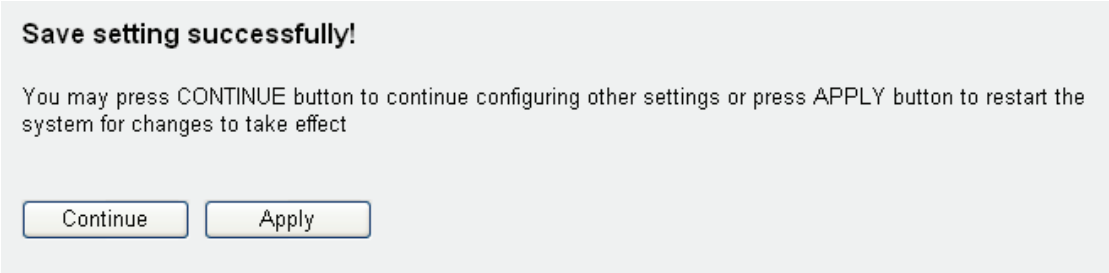
3-2-1 Basic NAT Settings (Enable or disable NAT function)

Click the 'NAT' menu on the left of the Web management interface top open up the NAT settings screen:

NAT Settings
Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as the Web or FTP.
Enable or disable NAT module function : Enable Disable 1
Enable or disable Fast NAT module function : Enable Disable 2

There are two choices here:

NAT (1) is the standard implementation. It offers maximum functionality, but since it requires a higher level of packet analysis, the WAN to LAN throughput (Internet <-> LAN) is lower than the LAN to LAN throughput (LAN <-> LAN).
Fast NAT (2) has limited functionality in comparison with ordinary NAT, so there can be problems with data transfers via certain protocols (such as FTP); on the plus side, Fast NAT delivers a WAN to LAN throughput which is almost as fast as the LAN to LAN throughput.
The recommended choice is 'NAT Enable.'
Click Apply to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

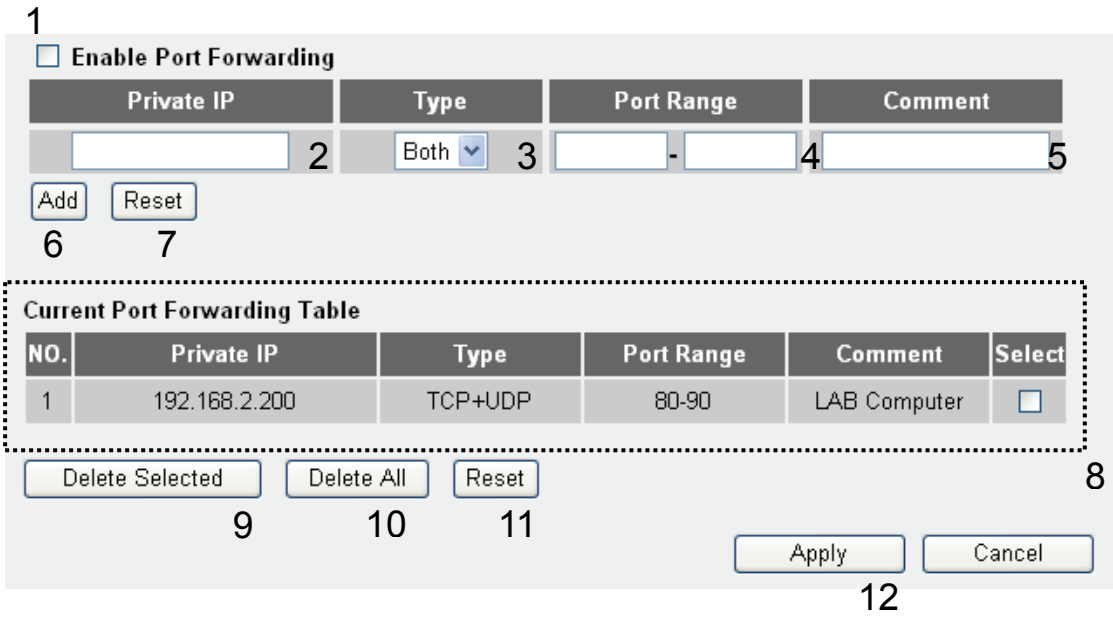
Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-2-2 Port Forwarding

With this function you can tell the router to forward incoming connections bound to a specific port or port range to an IP address on your local network. Many online games, game consoles with Internet service, remote access applications and special network devices such as network cameras require you to open and forward ports, often referred to as port mapping.

With port forwarding, the external and internal ports are always the same. If you need to redirect an incoming request on public port A to internal port B, you need to use the Virtual Server function (see chapter 3-2-3 Virtual Server).

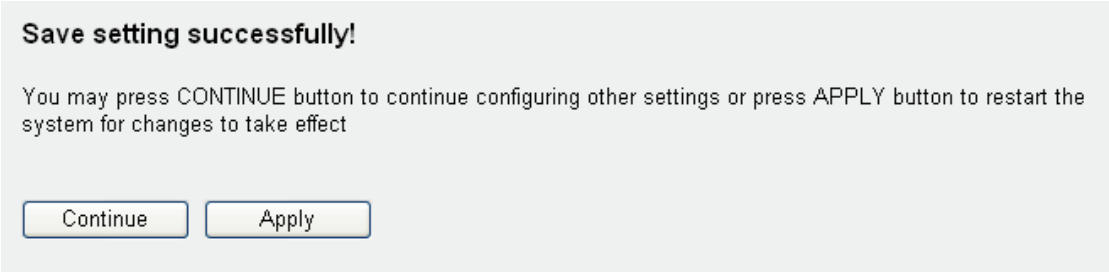
Click the 'NAT' menu on the left of the Web management interface, then click 'Port Forwarding' and the following screen appears:



Items and meanings:

Enable Port Forwarding (1):	*Check this box to enable port mapping, and uncheck this box to disable port mapping.*
Private IP (2):	*Input the IP address of the computer on the local network which provides Internet service.*
Type (3):	*Select the type of connection, TCP or UDP. The value depends on the requirements of your application or service. If you're not sure what to use, select 'Both'.*
Port Range (4):	*Enter the starting port number in the left field, and input the ending port number in the right field. If you only want to redirect a single port number, just enter the port number in the left field.*
Comment (5):	*Enter any text to describe this mapping, up to 16 alphanumerical characters, e.g., "camera web port".*
Add (6):	*Add the mapping to the port forwarding table.*
Reset (7):	*Resets all values of the input form.*
Port Forwarding Table (8):	*Shows all existing port forwarding rules (port mappings).*
Delete Selected (9):	*Select a port forwarding mapping by clicking the 'Select' box of the mapping, then click the 'Delete Selected' button to remove the mapping. If there's no existing mapping, this button will be grayed out.*
Delete All (10):	*Delete all existing port mappings.*
Reset (11):	*Unselect all mappings.*

Click 'Apply' (12) to save the settings.

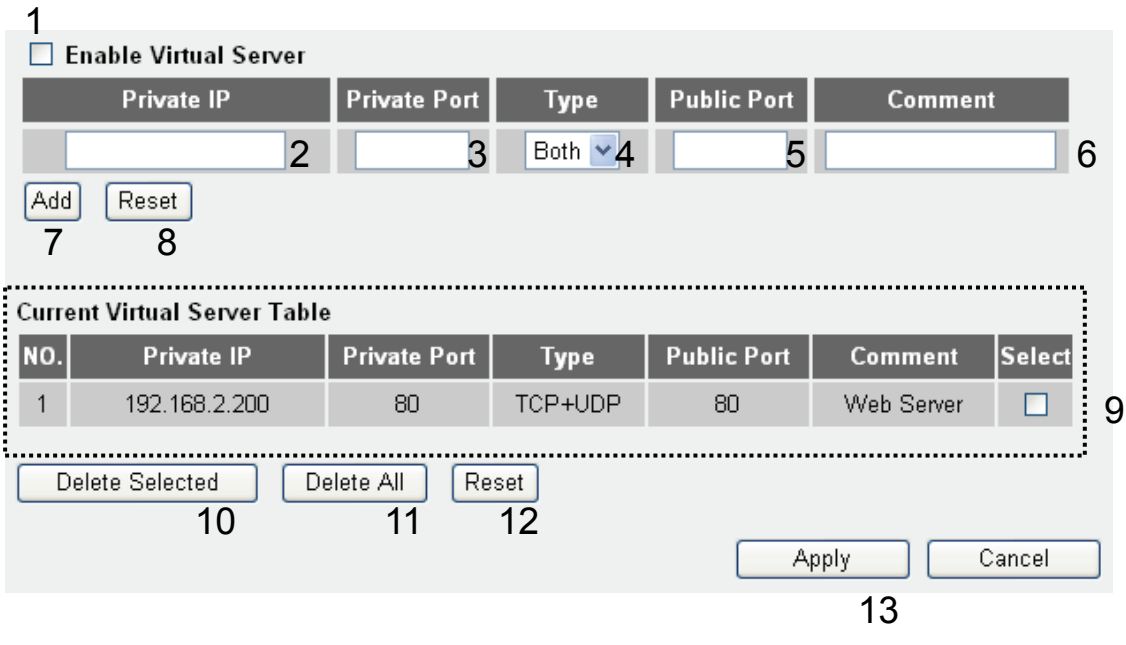

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-2-3 Virtual Server

This function is very similar to Port Forwarding; the differences are that Virtual Server does not allow you to specify a range of ports but only a single port; on the other hand, it enables you to redirect a public port to a different private port (e.g., public port 80 redirects to private port 85). This makes Virtual Server the obvious choice for hosting public Web services (e.g., a Web server) on a computer connected to one of the LAN ports on the router.

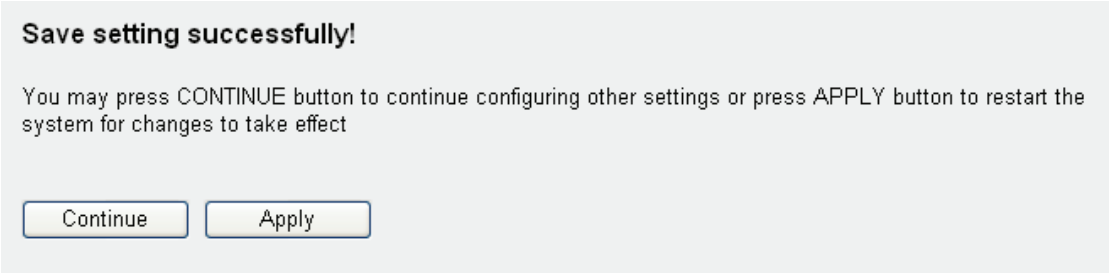
Click the 'NAT' menu on the left of the Web management interface, then click 'Virtual Server', and the following screen appears:



Items and meanings:

Enable Virtual Server (1):	*Check this box to enable virtual server, and uncheck this box to disable virtual server.*
Private IP (2):	*Input the IP address of the computer or network device which provides the network service.*
Private Port (3):	*Input the port number of the IP address which provides Internet service.*
Type (4):	*Select the type of connection, TCP or UDP. If you're not sure, select 'Both'.*
Public Port (5):	*Select the number of the public port which will be redirected to the port number of the local IP address defined above.*
Comment (6):	*Enter any text to describe this mapping, up to 16 alphanumerical characters; e.g., "FTP Server".*
Add (7):	*Adds the mapping to virtual server table.*
Reset (8):	*Remove all input values.*
Virtual Server Table (9):	*All existing virtual server mappings will be displayed here.*
Delete Selected (10):	*Select a virtual server mapping by clicking the 'Select' box of the mapping, then click 'Delete Selected' button to remove the mapping. If there's no existing mapping, this button will be grayed out.*
Delete All (11):	*Delete all existing virtual server rules.*
Reset (12):	*Unselect all mappings.*

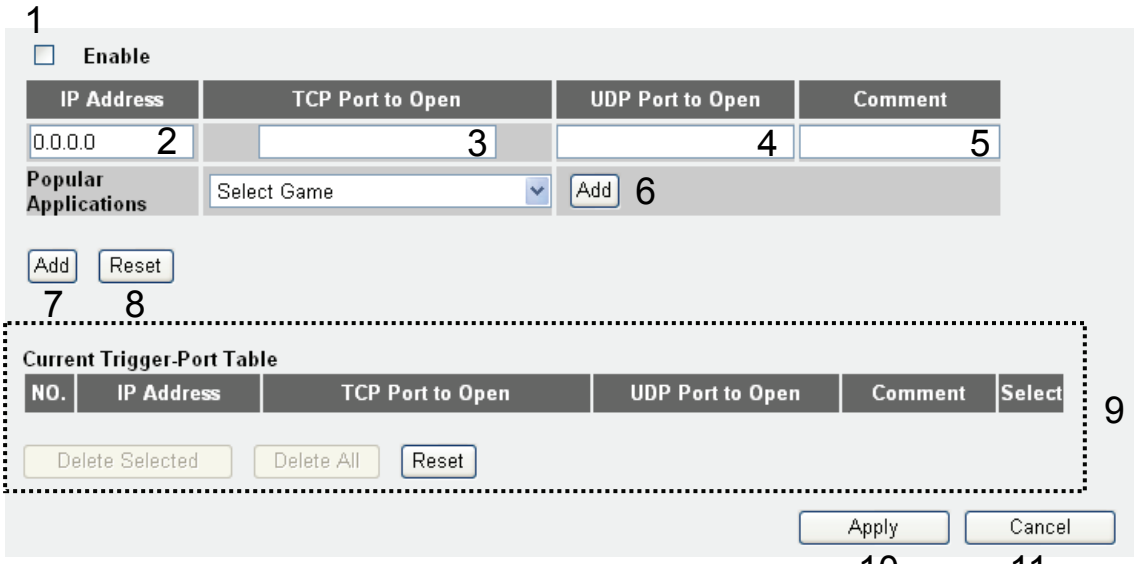
Click 'Apply' (13) to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-2-4 Port Mapping for Special Applications

Some applications require more than one connection a time; these applications won't work with simple NAT rules. In order to make these applications work, you can use this function.



Items and meanings:

Enable (1): *Check this box to enable special applications and, you guessed it, uncheck it to disable the service.*

IP Address (2): *Enter the IP address of the computer to which you want to open the ports.*

TCP Port to Open (3): *This is the outgoing (Outbound) range of TCP port numbers for this particular application.*

UDP Port to Open (4): This is the outgoing (Outbound) range of UDP port numbers for this particular application.

Comment (5): *The description of this setting.*

Popular Applications (6): *This section lists some popular applications that require multiple connections. Select an application from the Popular Applications selection and click 'Add' to save the setting to the 'Current Trigger-Port Table.'*

Add (7): *Add the setting to the Current Trigger-Port Table.*

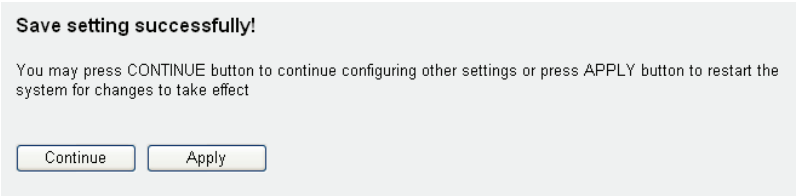
Reset (7): *Resets all input form values.*

Current Trigger-Port Table

All the settings for the specifal applications are listed here. If you want to remove some Special Application settings from the Current Trigger-Port Table, select the Special Application settings you want to remove in the table and then click "Delete Selected". If you want remove all Special Application settings from the table, just click the"Delete All" button. Click "Reset" to clear your current selections.

Note: Only one LAN client can use a particular special application at a time.

Click 'Apply' (10) to save the settings.

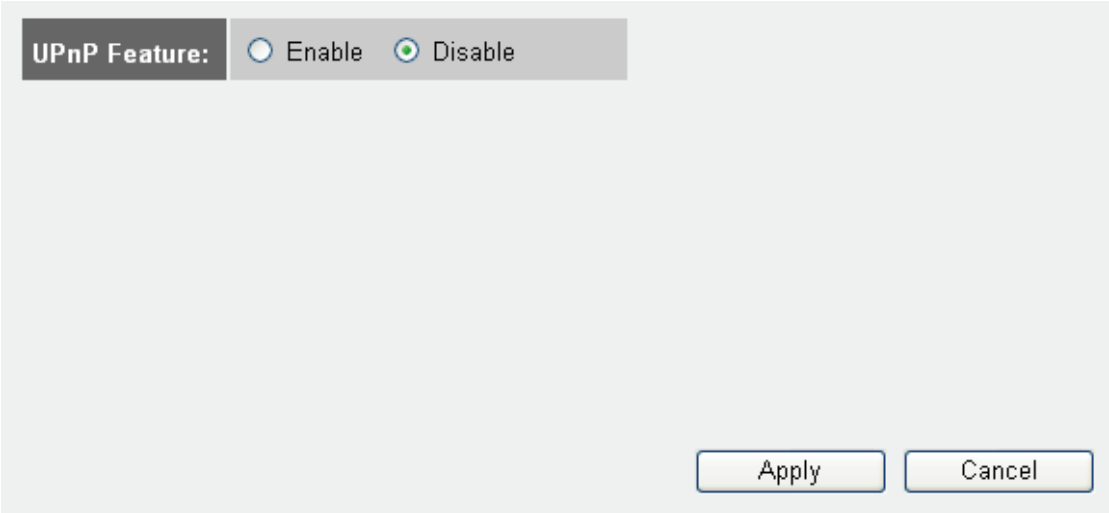

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

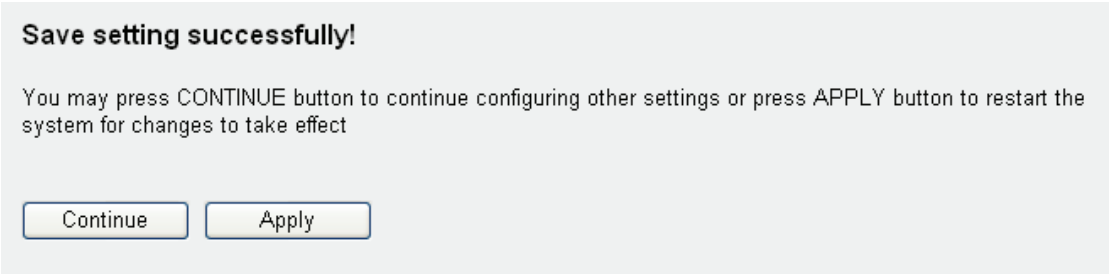
3-2-5 UPnP Setting

This function enables network auto-configuration for peer-to-peer communications. With this function, network devices will be able to communicate with other UPnP enabled devices directly, and learn about other devices. Many network device and applications rely on UPnP function nowadays.

Click the 'NAT' menu on the left of the Web management interface, then click 'UPnP' and the following screen appears:



There is nothing to configure for UPnP. You can either activate it or deactivate it. Click 'Apply' to save the settings.

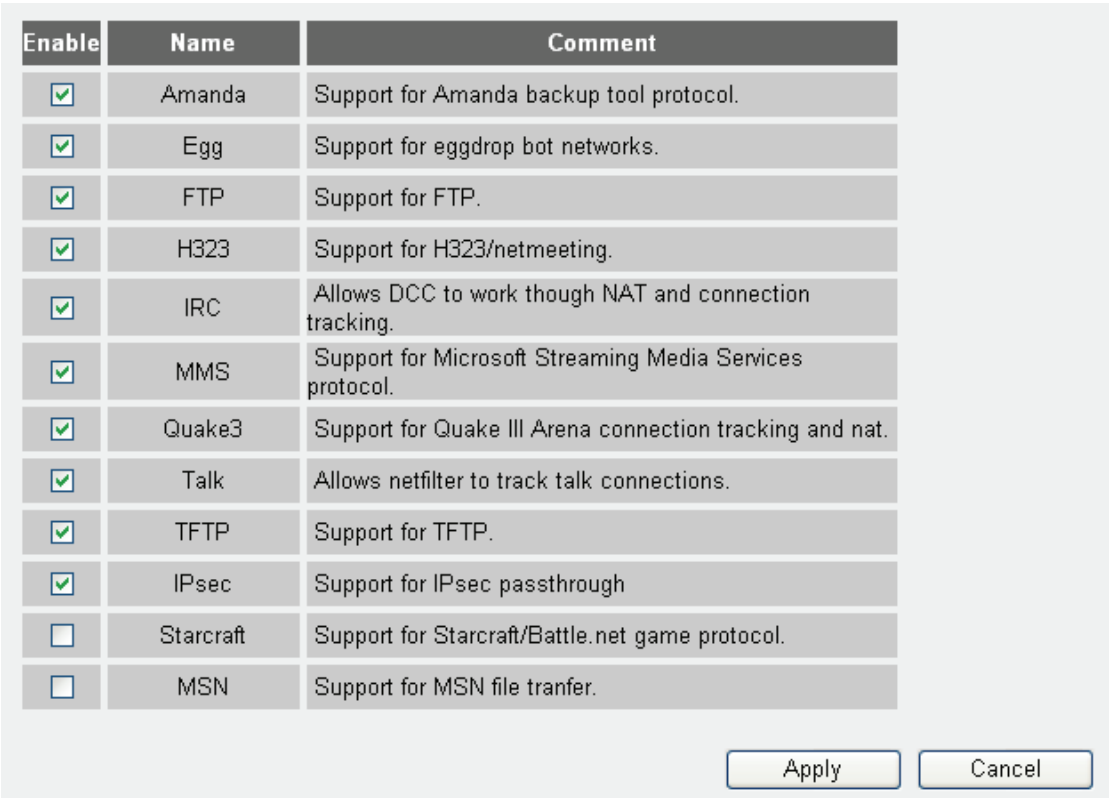

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

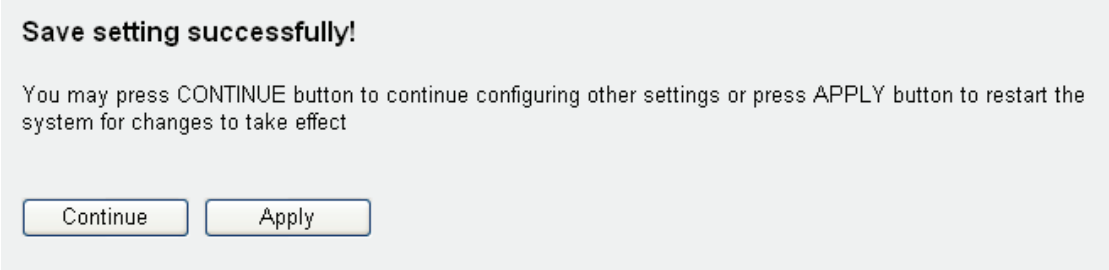
3-2-6 ALG Settings

Application Layer Gateway (ALG) is a special function of this router. It includes many preset routing rules for numerous applications which require special support to be able to work with the NAT architecture.

Click the 'NAT' menu on the left of the Web management interface, then click 'ALG Settings' and the following screen appears:



There are many applications listed here. Please check the box of the special support for applications you need, and then click the Apply and the following message will be displayed on your Web browser:

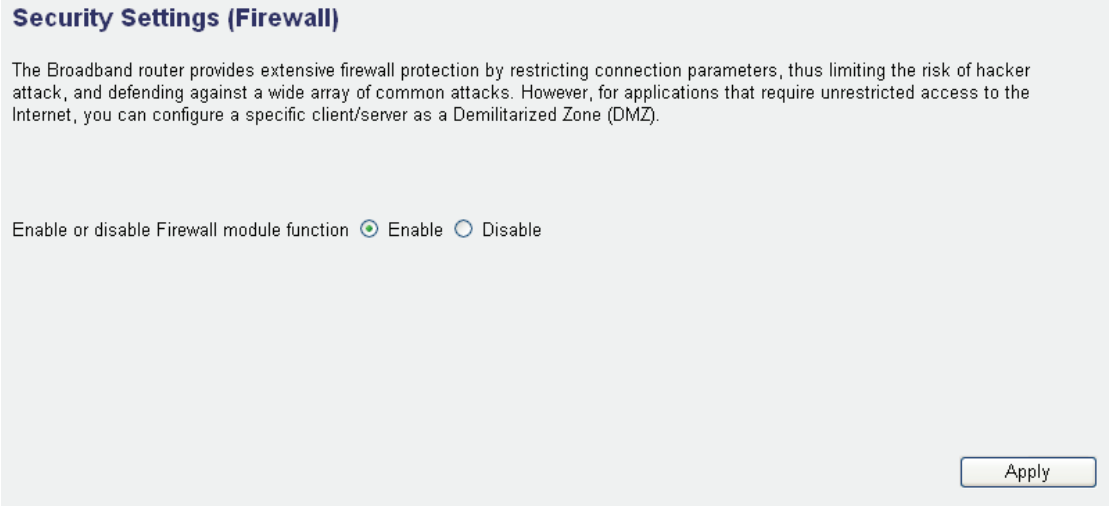

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

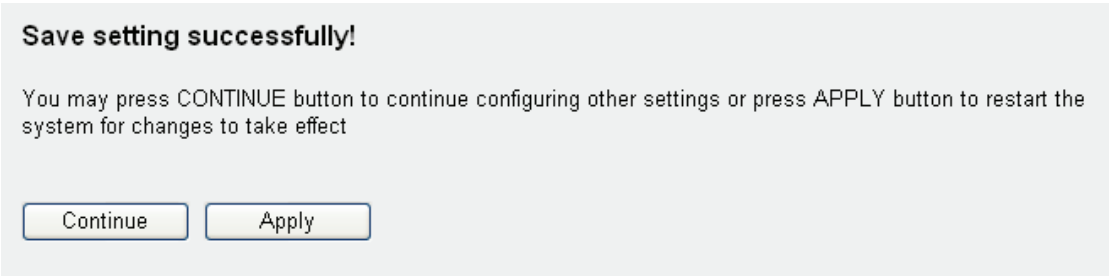
3-3 Firewall

Besides the NAT feature, this router also provides firewall functionality to block malicious intruders from accessing the computers on your local network.

The firewall is enabled or disabled in the 'Firewall' menu of the Web management interface. The screen looks like this:


Security Settings (Firewall)
The Broadband router provides extensive firewall protection by restricting connection parameters, thus limiting the risk of hacker attack, and defending against a wide array of common attacks. However, for applications that require unrestricted access to the Internet, you can configure a specific client/server as a Demilitarized Zone (DMZ).
Enable or disable Firewall module function
Enable
Disable
Apply

Select 'Enable' or 'Disable' to enable or disable the firewall function and click 'Apply' to save the settings.

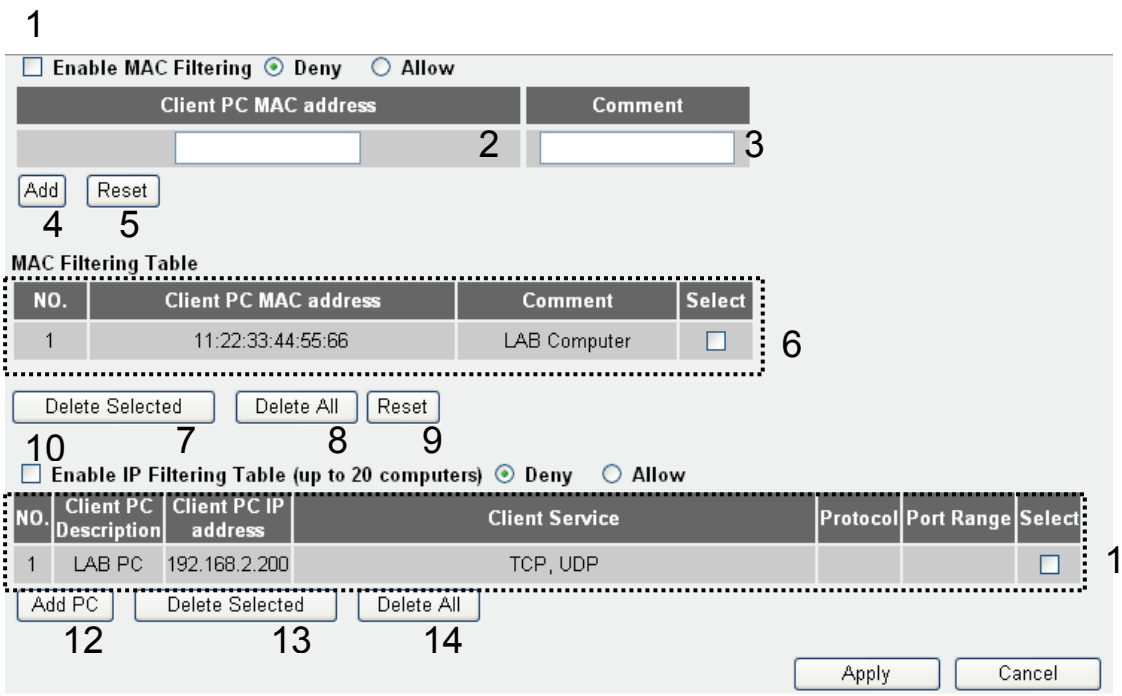

Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-3-1 Access Control

This function allows or denies computers with a specific MAC address access to the network; it can also allow or deny computers with a specific IP address, protocol, or port.

Click the 'Firewall' menu on the left of the Web management interface, then click 'Access Control' and the following screens shows up:



Items and meanings:

Enable MAC Filtering (1):	*Check this box to enable MAC address-based filtering, and select 'Deny' or 'Allow' to decide the behavior of the MAC filtering table. If you select 'Deny', all MAC addresses listed in the filtering table will be denied access to the network; if you select 'Allow', only MAC addresses listed in the filtering table will be able to connect to the network, and all other network devices will be rejected.*
Client PC MAC address (2):	*Enter the MAC address of computer or network device here. Dashes (-) or colons (:) are not required. (i.e. if the MAC address label of your wireless device indicates 'aa-bb-cc-dd-ee-ff' or*

'aa:bb:cc:dd:ee:ff', just input 'aabbccddeeff'.

Comment (3): *You can input any text here as the comment for this MAC address, like 'ROOM 2A Computer' or anything. You can input up to 16 alphanumerical characters here. This is optional and you can leave it blank, however, it's recommended to use this field to write a comment for every MAC address as a memory aid.*

Add (4): *Click the 'Add' button to add the MAC address and associated comment to the MAC address filtering table.*

Reset (5): *Remove all input values.*

MAC Filtering Table (6): *All existing MAC addresses in the filtering table are shown here.*

Delete Selected (7): *If you want to delete a specific MAC address entry, check the 'select' box of the MAC address you want to delete, then click the 'Delete Selected' button (You can select more than one MAC address at the same time).*

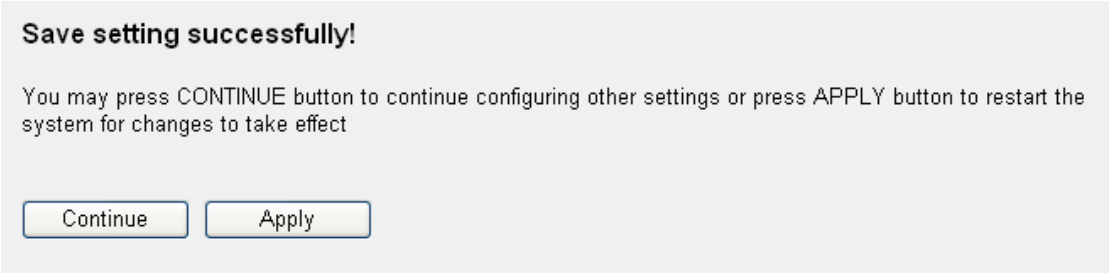
Delete All (8): *If you want to delete all MAC addresses listed here, click 'Delete All'.*

Reset (9): *You can also click the 'Reset' button to unselect all MAC addresses.*

Enable IP Filtering Table (10): *Check this box to enable IP address-based filtering, and select 'Deny' or 'Allow' to decide the behavior of the IP filtering table. If you select 'Deny', all IP addresses listed in the table will be denied access to the network; if you select 'Allow', only IP addresses listed in the filtering table will be able to connect to the network, and all other*

	network devices will be rejected.
IP Filtering Table (11):	*All existing IP addresses in the table are listed here.*
Add PC (12):	*Click this button to add a new IP address to IP filtering table. Up to 20 IP addresses can be added. Refer to section 3-3-1-1 'Add PC' below.*
Delete Selected (13):	*If you want to delete a specific IP address entry, check the 'select' box of the IP address you want to delete, then click 'Delete Selected' button. (You can select more than one IP address at the same time.)*
Delete All (14):	*If you want to delete all IP addresses listed here, click the 'Delete All' button.*

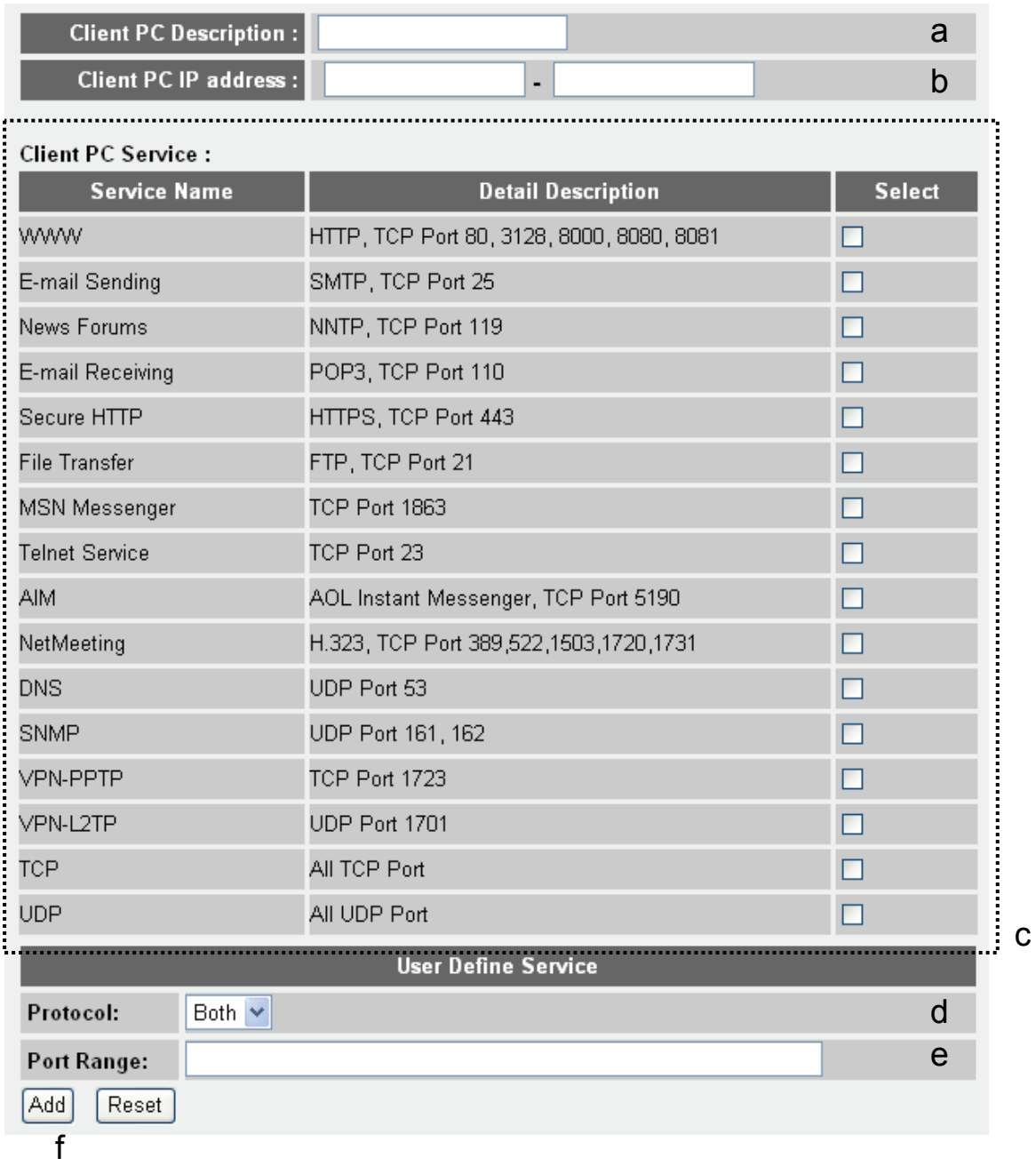
Click 'Apply' (15) to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-3-1-1 Add PC

After the 'Add PC' button is clicked, the following message will be displayed on your Web browser:



Items and meanings:

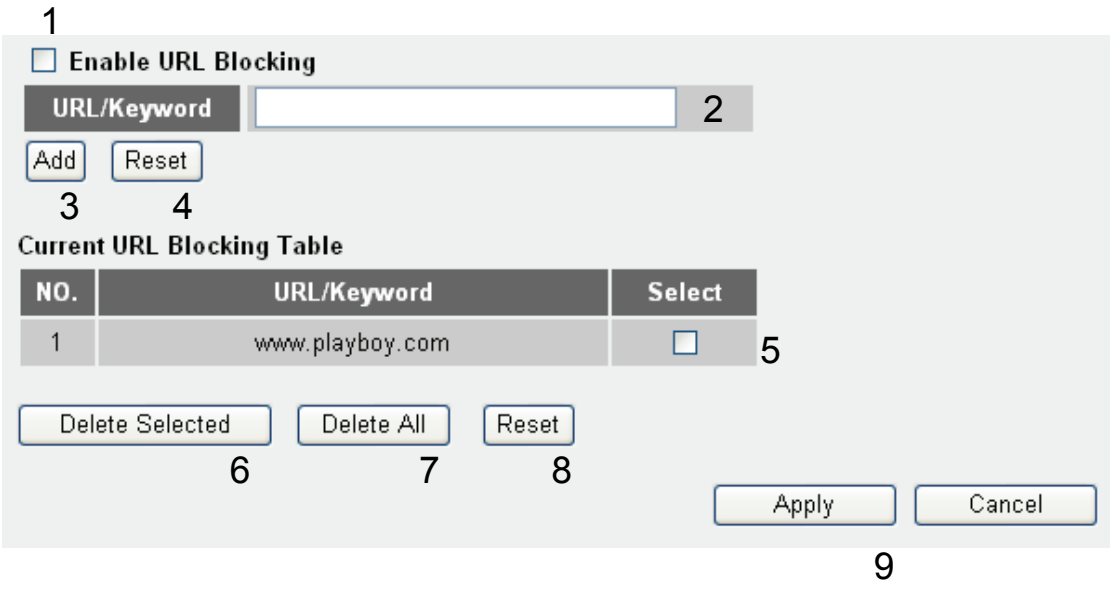
Client PC Description (a):	*Enter any text to describe this IP address, up to 16 alphanumerical characters.*
Client PC IP address (b):	*Enter the starting IP address in the left field and the end IP address in the right field to define a range of IP addresses, or just input the IP address in the left field to define a single IP address.*
Client PC Service (c):	*Please check all services you want to allow or deny through this IP address. You can check multiple services.*
Protocol (d):	*If the service you need is not listed above, you can create a new service on your own. Select TCP or UDP. If you're not sure, select 'Both'.*
Port Range (e):	*Enter the port range of the new service here. If you want to specify port 80 to 90, Enter 80-90; if you want to apply this rule on a single port, just input the port number, like '80'.*
Add (f):	*Click 'Add' to save settings. You'll be redirected to the previous menu and the rule you just set will appear in the IP filtering table.*

If you want to remove all settings in this page, click 'Reset' button.

3-3-2 URL Blocking

If you want to prevent computers in the local network from accessing certain Web sites, you can define the Web sites, IP addresses or keywords here. This function is useful for parents and company managers. The former can protect children from inappropriate contents on the Internet; the latter can protect the employees from themselves and from losing their jobs.
You can block full Web site URLs such as 'www.microsoft.com', you can block IP Addresses such as '207.46.232.182', or you can block a part of a URL. For example, if you enter the keyword *'downloads'*, you can connect to 'www.microsoft.com', but you cannot connect to 'www.microsoft.com/*downloads'*.

Click the 'Firewall' menu on the left of the Web management interface, then click 'URL Blocking' and the following screen appears:

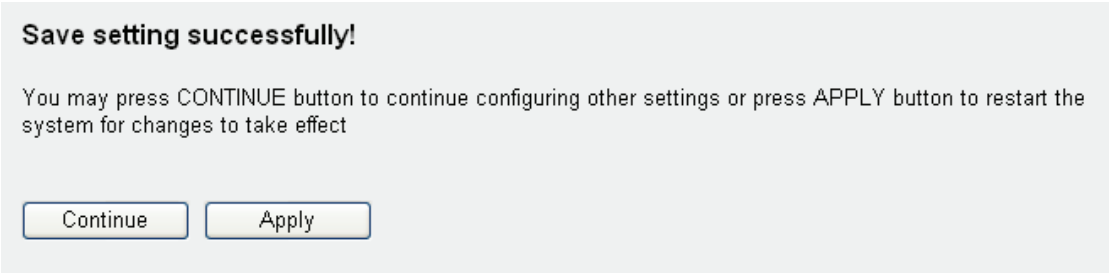


Items and meanings:

Enable URL Blocking (1):	*Check this box to enforce URL Blocking, uncheck it to disable URL Blocking.*
URL/Keyword (2):	*Input the URL (host name or IP address of Web site, like http://www.blocked-site.com or http://11.22.33.44), or the keyword which is contained in a URL (like pornography, sex, banner, advertisement, etc).*

Add (3):	*Adds the URL / keyword to the URL / Keyword filtering table.*
Reset (4):	*Removes the value you input in URL/Keyword field.*
Current URL Blocking Table (5):	*All existing URL/Keywords in the filtering table are shown here.*
Delete Selected (6):	*If you want to delete a specific URL/Keyword entry, check the corresponding 'select' box and click 'Delete Selected'.*
Delete All (7):	*Click 'Delete All' to delete all filtering rules.*
Reset (8):	*You can also click the 'Reset' button to unselect all URL/Keywords.*

Click 'Apply' (9) to save the settings.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

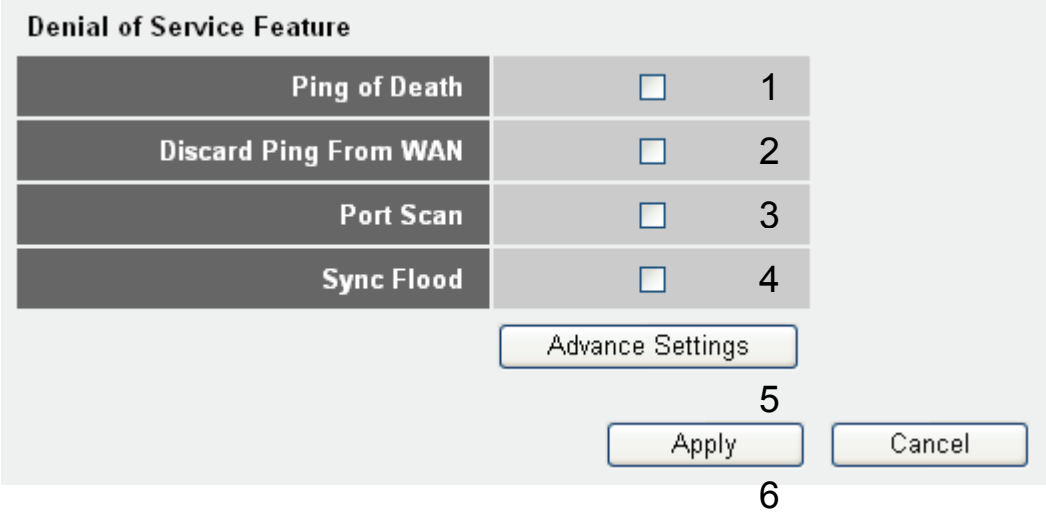
Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-3-3 DoS Attack Prevention

A denial-of-service attack (DoS attack) is an attempt to make a computer resource unavailable to its intended users. DoS attacks generally consist of the concerted, malevolent efforts of a person or persons to prevent an Internet site or service from functioning efficiently or at all, temporarily or indefinitely. One common method of attack involves saturating the target (victim) machine, in this case the router, with external communications requests, such that it cannot respond to legitimate traffic, or responds so slowly as to be rendered effectively unavailable.

The INTELLINET NETWORK SOLUTIONS 523967 Broadband Router has a built-in DoS attack prevention mechanism to prevent a DoS attack from succeeding. We recommend activating all options.

Click the 'Firewall' menu on the left of the Web management interface, then click 'DoS' and the following screen appears:

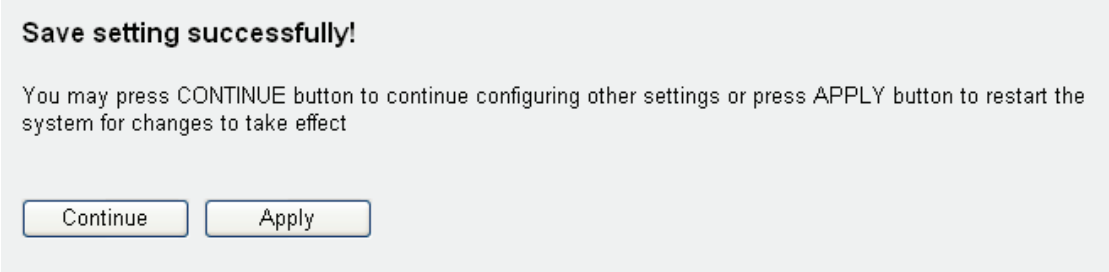


Items and Meanings:

Ping of Death (1):	*Ping of Death is a special packet, and it will cause certain computers to stop responding. Check this box and the router will filter this kind of packet out.*
Discard Ping From WAN (2):	*Ping is a common and useful tool for knowing the connection status of a specified remote network device, but some malicious intruder will try to fill your network bandwidth with a lot of PING request*

	data packets, to make your Internet connection become very slow, even unusable. Check this box and the router will ignore all inbound PING requests. But when you activate this function, you will not be able to ping your own router from the Internet, either.
Port Scan (3):	*Some malicious intruder will try to use a 'port scanner' to know how many ports of your Internet IP address are open, and they can collect a lot of valuable information by doing so. Check this box and the router will block all traffic which is trying to scan your Internet IP address.*
Sync Flood (4):	*This is another kind of attack, which uses a lot of fake connection requests to consume the memory of your server, and try to make your server become unusable. Check this box and the router will filter this kind of traffic out.*
Advanced Settings (5):	*Click this button and you can set advanced settings of the DoS prevention method listed above. See section 3-3-3-1 'DoS – Advanced Settings' below.*

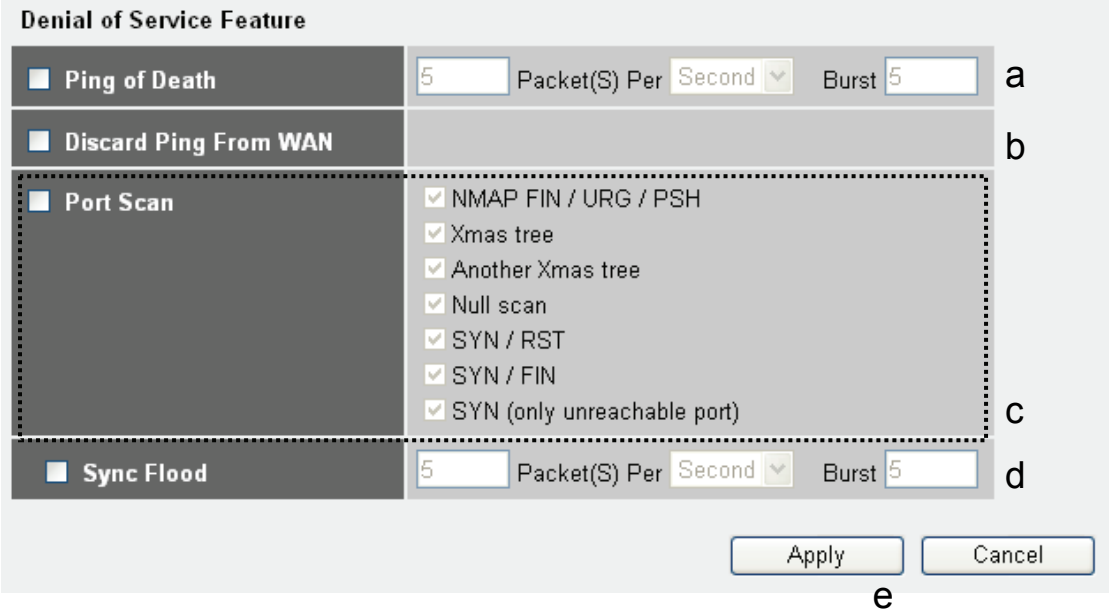
Click 'Apply' (6) to save the settings:


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-3-3-1 DoS - Advanced Settings

When you click the 'Advanced' button in DoS menu, the following screen will be displayed in your Web browser:



Items and meanings:

Ping of Death (a): *Set the threshold of when this DoS prevention mechanism will be activated. Check the box for Ping of Death, and input the frequency of threshold (how many packets per second, minute, or hour). You can also input the 'Burst' value, which means when this number of 'Ping of Death' packets is received in a very short time, this DoS prevention mechanism will be activated.*

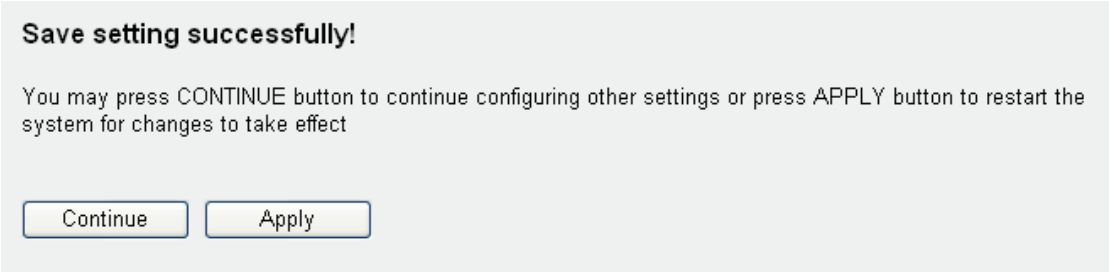
Discard Ping From WAN (b): *Check the box to activate this DoS prevention mechanism.*

Port Scan (c): *Many kinds of port scan methods are listed here. Check one or more DoS attack methods you want to prevent.*

Sync Flood (d): *Like Ping of Death, you can set the threshold of when this DoS prevention mechanism will be*

activated.

Click 'Apply' (6) to save the changes.


Save setting successfully!
You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system for changes to take effect
Continue
Apply

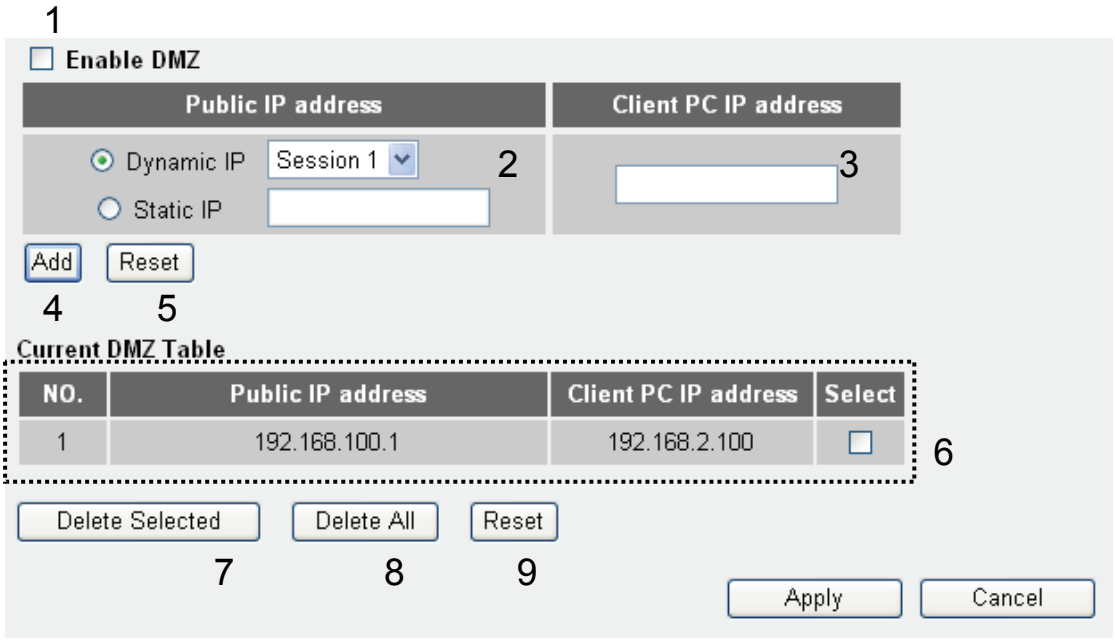
Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-3-4 Demilitarized Zone (DMZ)

The Wireless N Broadband Router protects all connected computers in your local network through means of NATing and the Firewall. Sometimes, however, you may want to expose a computer or network device to the Internet intentionally for various reasons; e.g., troubleshooting of network problems. Placing a computer in the DMZ puts it at great risk because the protection mechanisms of the router no longer apply.

So, unless you know what you are doing, you should not use this function at all.

Click the 'Firewall' menu on the left of the Web management interface, then click 'DMZ' and the following screen appears.



Items and meanings:

Enable DMZ (1): *Check this box to enable the DMZ function. Uncheck this box to disable it.*

Public IP address (2): *You can select 'Dynamic IP' or 'Static IP' here. If you select 'Dynamic IP', you have to select an Internet connection session from the dropdown menu; if you select 'Static IP', enter the IP address that you want to map to a specific private IP address.*

Client PC IP address (3): *Enter the private IP address that the Internet IP address will be mapped to. That is the computer you want to bypass the Firewall and NATing.*

Add (4): *Click the 'Add' button to add the public IP address and associated private IP address to the DMZ table.*

Reset (5): *Clears the input form values.*

Current DMZ table (6): *All existing public IP address/ private IP address mappings are shown here.*

Delete Selected (7): *If you want to delete a specific DMZ entry, check the 'select' box of the DMZ entry you want to delete,*

then click 'Delete Selected'. (You can select more than one DMZ entry at the same time).

Delete All (8): *Deletes all DMZ entries.*

Reset (9): *Reset the input form values.*

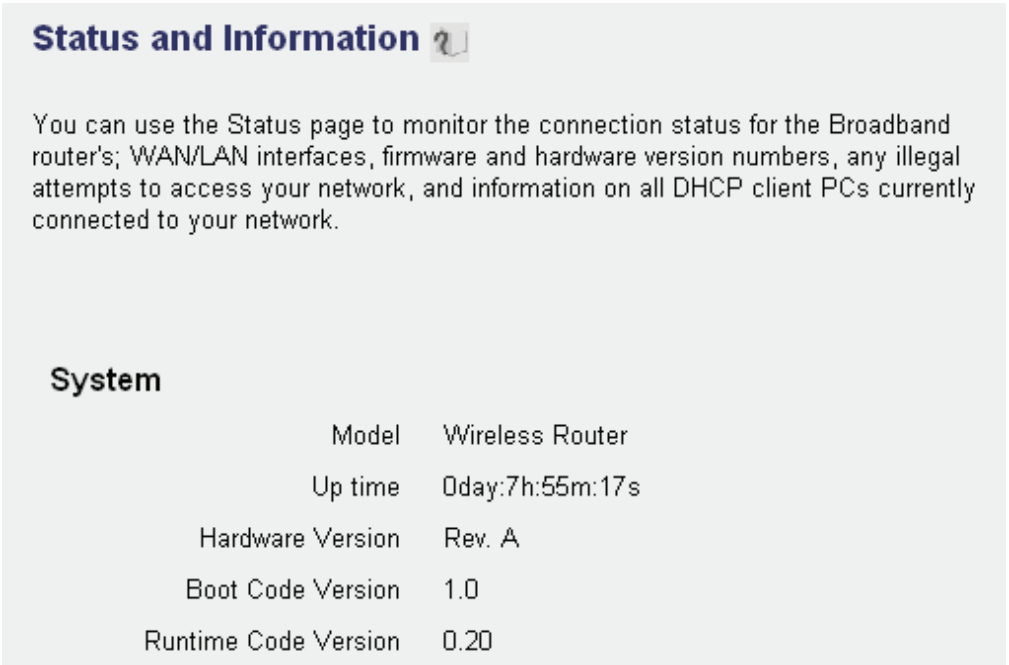
Click 'Apply' (10) to save the settings.
Click 'Continue' to go back to the previous setup menu and to continue with the router setup. Click 'Apply' to reboot the router so the settings will take effect. Please wait for about 30 seconds while the router is rebooting.

3-4 System Status

The system status page shows information about the firmware version of the router, the Internet connection, IP address information, log files and more.

3-4-1 System information and firmware version

Click the 'Status' link located at the upper-right corner of the Web management interface and the following screen appears:

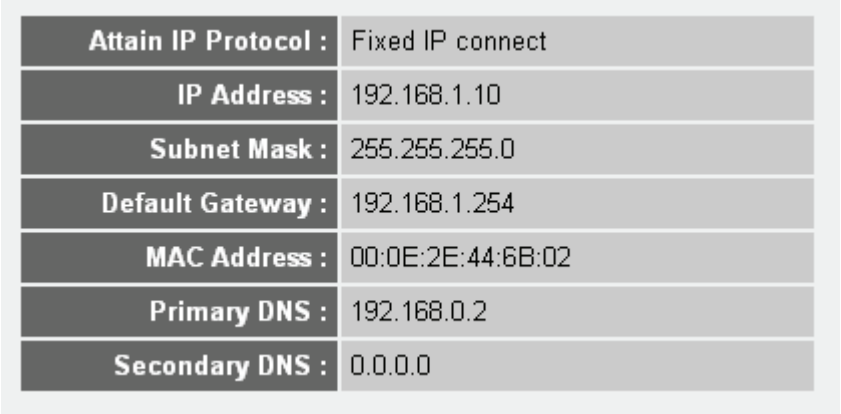

Status and Information
You can use the Status page to monitor the connection status for the Broadband router's; WAN/LAN interfaces, firmware and hardware version numbers, any illegal attempts to access your network, and information on all DHCP client PCs currently connected to your network.
System
Model
Wireless Router
Up time
0day:7h:55m:17s
Hardware Version
Rev. A
Boot Code Version
1.0
Runtime Code Version
0.20

The information shown may vary from the output on your screen.

In case you experience technical difficulties with the Router and need to contact technical support, you should write down the BOOT CODE Version and RUNTIME CODE version shown on the screen. It is very likely that you would be asked to provide these numbers by the technical support representative.

3-4-2 Internet Connection Status

Click the 'Internet Connection' menu on the left of the Web management interface and the screen below appears:



Attain IP Protocol :	Fixed IP connect
IP Address :	192.168.1.10
Subnet Mask :	255.255.255.0
Default Gateway :	192.168.1.254
MAC Address :	00:0E:2E:44:6B:02
Primary DNS :	192.168.0.2
Secondary DNS :	0.0.0.0

The information shown may vary from the output on your screen.

This screen shows which IP address information the router has obtained. If you experience problems with your Internet connection, you should open this page and check the contents. Values for IP Address, Default Gateway and Primary DNS should always be filled. If they are missing, this indicates that there is a connection problem preventing the router from accessing the Internet.

3-4-3 Device Status

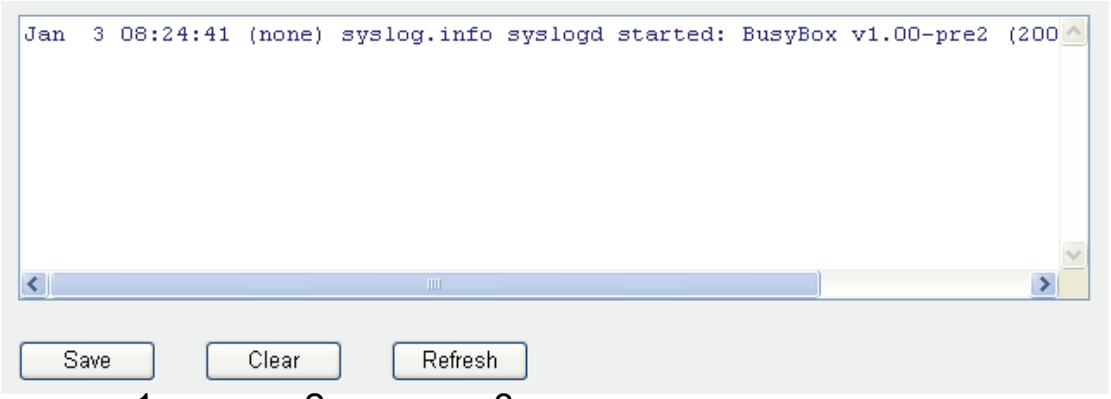
Click the 'Device Status' link on the left of the Web management interface to view information about the router status:
You can see information about the wireless configuration as well as the LAN configuration, including information about the encryption and IP address settings of the router.

Wireless Configuration	
Mode	AP
ESSID	default
Channel Number	1
Security	WEP
LAN Configuration	
IP Address	192.168.2.1
Subnet Mask	255.255.255.0
DHCP Server	Disable
MAC Address	00:0e:2e:44:6b:01

The information shown may vary from the output on your screen.

3-4-4 System Log

Click the 'System Log' link on the left of the Web management interface to view the system log information. All important system events are logged here.

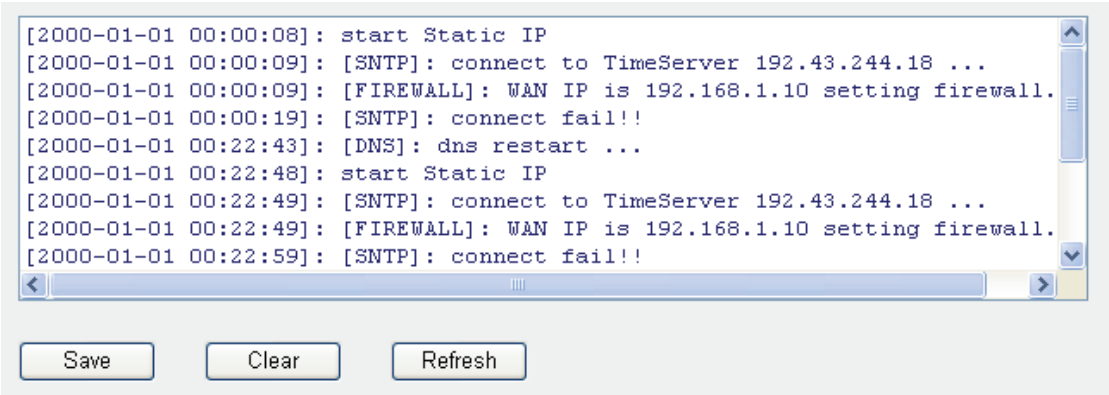


Items and meanings:

Save (1):	*Saves current event log to a text file.*
Clear (2):	*Deletes all event log messages displayed.*
Refresh (3):	*Refreshes the view to display the most current event log messages.*

3-4-5 Security Log

Click the 'Security Log' link on the left of the Web management interface to view the security log information.


[2000-01-01 00:00:08]: start Static IP
[2000-01-01 00:00:09]: [SNTP]: connect to TimeServer 192.43.244.18 ...
[2000-01-01 00:00:09]: [FIREWALL]: WAN IP is 192.168.1.10 setting firewall.
[2000-01-01 00:00:19]: [SNTP]: connect fail!!
[2000-01-01 00:22:43]: [DNS]: dns restart ...
[2000-01-01 00:22:48]: start Static IP
[2000-01-01 00:22:49]: [SNTP]: connect to TimeServer 192.43.244.18 ...
[2000-01-01 00:22:49]: [FIREWALL]: WAN IP is 192.168.1.10 setting firewall.
[2000-01-01 00:22:59]: [SNTP]: connect fail!!
Save
Clear
Refresh
1
2
3

Items and meanings:

Save (1):	*Saves the current system log to a text file.*
Clear (2):	*Deletes all system log messages displayed.*
Refresh (3):	*Refreshes the view to display the most current system log messages.*

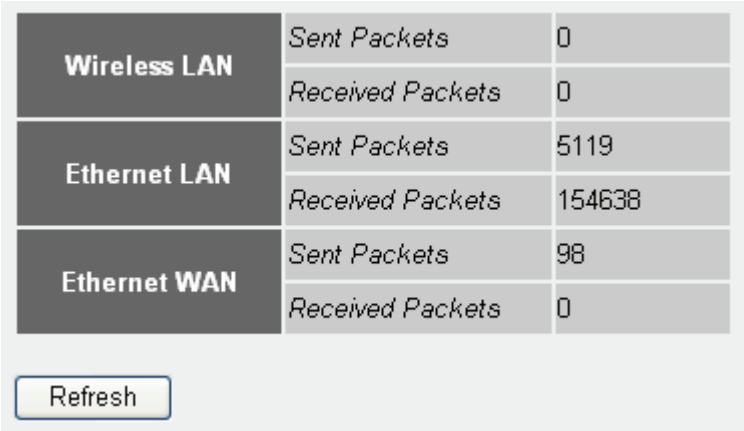
3-4-5 Active DHCP client list

If you're using the DHCP server function of this router, you can use this function to check all active DHCP leases issued by this router.

Click the 'Active DHCP client' link on the left of the Web management interface to see which stations are connected and have obtained an IP address from the router.

3-4-6 Statistics

Statistics of the wireless LAN, wired LAN, and WAN interface of the router are shown when you click on the 'Statistics' link on the left of the Web management interface.



You can click the 'Refresh' button to display the latest information.

The information is accumulative and is only reset after the router is restarted.

3-5 Configuration Backup and Restore

You can back up the configuration of the router to a file, so you can reload it at a later time. You can save different configurations, each with unique settings, and reload them as needed.

Click the 'Tool' link located at the upper-right corner of the Web management interface, then click 'Configuration Tools' on the left.

Items and meanings:

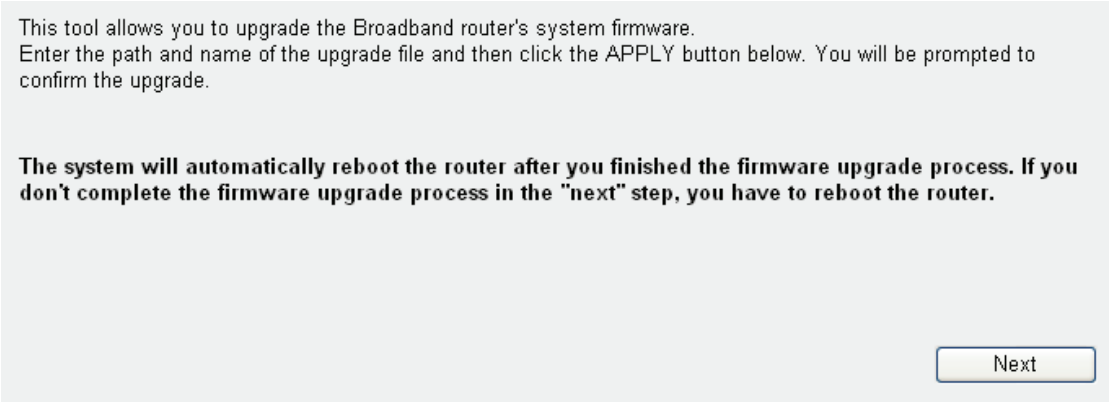
Backup Settings (1):	*Press the 'Save...' button, and you'll be prompted to download the configuration as a file, default filename is 'default.bin', save it as another filename for different versions, and keep it in a safe place.*

Restore Settings (2):	*Press 'Browse…' to pick a previously saved configuration file from your computer, and then click 'Upload' to transfer the configuration file to the router. After the configuration is uploaded, the router's current configuration will be replaced by the file you just uploaded.*
Restore to Factory Default (3):	*Resets all settings of the router to the factory default values.*

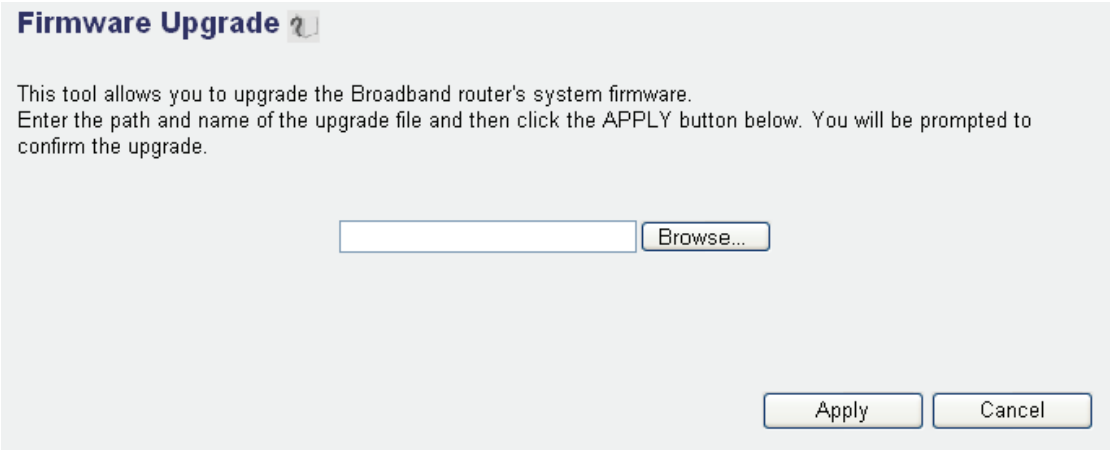
3-6 Firmware Upgrade

The firmware of the router is the equivalent of the operating system on your computer. Firmware upgrades for this router may be available on www.intellinet-network.com. If you experience technical difficulties, you should first check if an updated firmware is available for the router and install it using the firmware upgrade function.

Click the 'Tool' link located at the upper-right corner of the Web management interface, then click 'Firmware Upgrade' on the left.


This tool allows you to upgrade the Broadband router's system firmware.
Enter the path and name of the upgrade file and then click the APPLY button below. You will be prompted to confirm the upgrade.
The system will automatically reboot the router after you finished the firmware upgrade process. If you don't complete the firmware upgrade process in the "next" step, you have to reboot the router.
Next

Click 'Next', and the following message will be displayed:


Firmware Upgrade
This tool allows you to upgrade the Broadband router's system firmware.
Enter the path and name of the upgrade file and then click the APPLY button below. You will be prompted to confirm the upgrade.
Browse...
Apply
Cancel

Click 'Browse' and locate the firmware file you have downloaded from the Web site. If the firmware file is in ZIP (compressed archive) format, you have to uncompress it prior to the firmware upgrade.

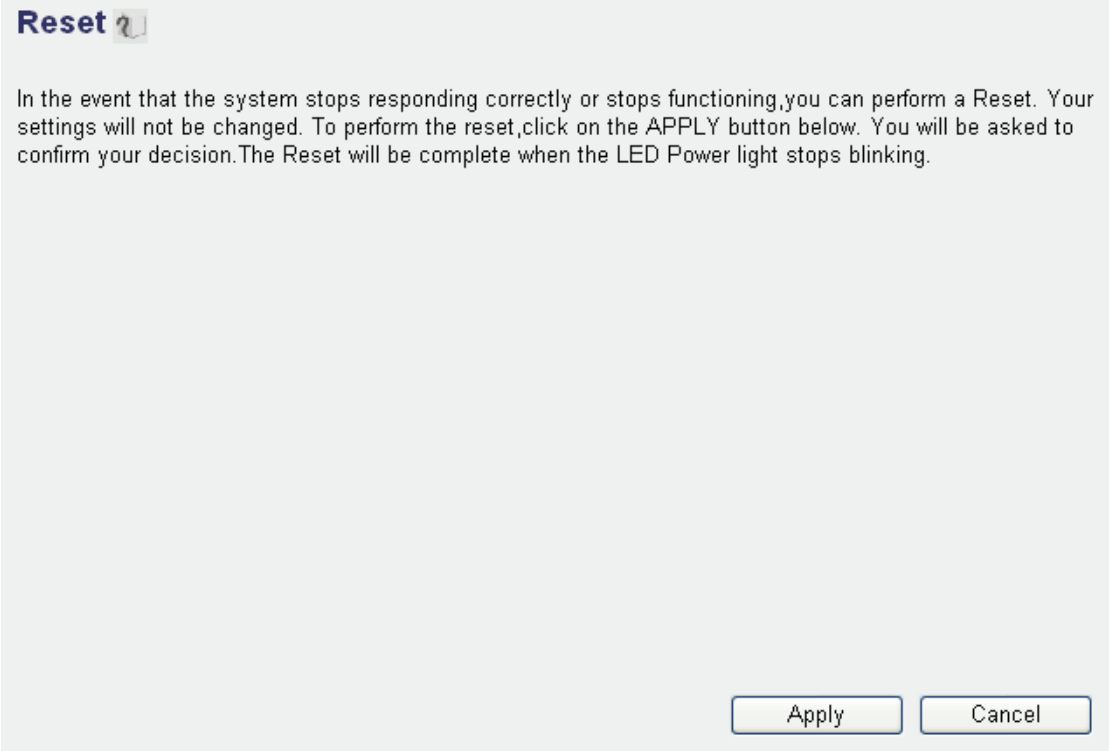
Click the 'Apply' button to start firmware upgrade process. You should pay special attention to the following information:

NOTE: Never interrupt the upgrade process by closing the Web browser or physically disconnecting your computer from the router. If the upgrade process is interrupted by a network problem or a power failure, the router will cease to function.
Damages resulting from improperly performed firmware upgrades are excluded from the product warranty!

3-7 System Reset

This function allows you to restart the router without disconnecting the power from the unit. A restart (or system reset) can be necessary if the router responds slowly, if your Internet connection speed has dropped or if the router behaves in an unusual, strange manner.

To restart the router, click the 'Tool' link located at the upper-right corner of the Web management interface, then click 'Reset' on the left of the Web management interface.


Reset
In the event that the system stops responding correctly or stops functioning,you can perform a Reset. Your settings will not be changed. To perform the reset,click on the APPLY button below. You will be asked to confirm your decision.The Reset will be complete when the LED Power light stops blinking.
Apply
Cancel

Click 'Apply' to reset your router, and it will be available again after few minutes. Please be patient.

This function does NOT change any settings you have made. It simply restarts (reboots) the router, just as START -> SHUT DOWN -> RESTART reboots your Windows computer, freeing up memory and system resources for a more stable operation of the router.

Chapter IV: Appendix

4-1 Hardware Specifications

Standards

• IEEE 802.1d (Spanning Tree Protocol)

• IEEE 802.11b (11 Mbps Wireless LAN)

• IEEE 802.11g (54 Mbps Wireless LAN)

• IEEE 802.11n Draft 2.0 (300 Mbps Wireless LAN)

• IEEE 802.3 (10Base-T Ethernet)

• IEEE 802.3u (100Base-TX Fast Ethernet)

General

• LAN ports: 4 RJ-45 10/100 Mbps data ports

• LAN ports with Auto MDI/MDI-X

• WAN port: 10/100 Mbps RJ-45 connector

• LAN to WAN throughput: 80 Mbps

• Flash: 4 MB

• Memory: 16 MB SDRAM

• Certifications: FCC Class B, CE Mark, RoHS

Router

• Supported WAN connection types:

  - Dynamic IP (DHCP for cable service)

  - Static IP

  - PPPoE (for DSL)

  - PPTP

• Protocols:

  - CSMA/CA

  - CSMA/CD

  - TCP/IP

  - UDP

  - ICMP

  - PPPoE

  - NTP

  - NAT (network address translation)

  - DHCP

- DNS

• NAT:
  - Virtual server
  - Port forwarding
  - Special applications (port trigger)

• Firewall:
  - Access control based on MAC address
  - URL filter
  - DMZ (demilitarized zone)

• Supports UPNP (Universal Plug and Play)

• Supports DHCP (client/server)

• Supports PPPoE (DSL), DHCP (cable) and static IP

• VPN pass-through: PPTP protocol

• Certifications: FCC Class B, CE Mark, RoHS

Wireless

• Chipset: Ralink RT2880

• Wireless frequency range: 2.400 – 2.4835 GHz

• Modulation technologies:
  - 802.11b: Direct Sequence Spread Spectrum (DSSS): DBPSK, DQPSK, CCK
  - 802.11g: Orthogonal Frequency Division Multiplexing (OFDM): BPSK, QPSK, 16QAM, 64QAM
  - 802.11n: Orthogonal Frequency Division Multiplexing (OFDM): BPSK, QPSK, 16QAM, 64QAM

• Channels:
  - USA & Canada: 11 channels
  - Europe: 13 channels
  - Japan: 14 channels

• Data rates:
  - IEEE 802.11b (11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps)
  - IEEE 802.11g (54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps)

• Output power:
  - OFDM: 16 dBm +/- 1 dBm (300 Mbps, 50 mW max.)
  - OFDM: 16 dBm +/- 1 dBm (300 Mbps, 50 mW max.)
  - CCK: 18 dBm +/- 1 dBm (11 Mbps, 80 mW max.)

• Receiver sensitivity:
  - 11n (300 Mbps): 20 MHz: -71 dBm; 40MHz: -68 dBm
  - 11g (54 Mbps): -74 dBm
  - 11b (11 Mbps): -87 dBm

• Maximum coverage distance: 100 m / 328 ft. (indoor), 600 m / 1,968 ft. (outdoor)

• Wireless security:
  - WEP encryption (64/128 bit)
  - WPA TKIP
  - WPA2 AES
  - WPA2 mixed
  - WPA RADIUS
  - Client access control through media access control (MAC) filter
• Antennas:
  - three fixed dipole antennas with 3 dBi gain each
  - 2T3R MIMO mode (2 transmitter, 3 receiver)

LEDs

• Power
• WLAN Link/Act
• WAN Link/Act
• WAN 10/100 Mbps
• LAN 1-4 Link/Act
• LAN 1-4 10/100 Mbps

Environmental

• Dimensions: 195 (W) x 127 (L) x 35 (H) mm (7.6 x 5.0 x 1.4 in.)
• Weight: 1.0 kg (2.2 lbs.)
• Operating temperature: 0 – 50°C (32 – 122°F)
• Operating humidity: 10 – 95% RH, non-condensing
• Storage temperature: -20 – 60°C (4 – 149°F)

Power

• External power adapter: 12 V DC, 1.0 A
• Power consumption: 6.3 Watts max.

Package Contents

• Wireless 802.11n Broadband Router
• User manual
• Power cord
• Ethernet Cat5 RJ-45 cable: 1.0 m (3 ft.)

4-2 Troubleshooting

This section helps you troubleshoot possible problems you may be experiencing with the router. Before you contact your dealer for help, you should perform the following troubleshooting steps:

Scenario	Solution
Router is not responding to me when I want to access it with the Web browser	a. Check the power connection and the connection of the network cable. All cords and cables should be correctly and firmly inserted into the router. b. If all LEDs on this router are off, check the status of the A/C power adapter, and make sure it's correctly plugged into your power outlet. c. Check and verify the IP address you connect to. The router's default IP Address is 192.168.2.1, but you may have changed it. d. Are you using MAC or an IP address filter? Try to connect to the router with another computer and see if it works; if not, restore the router's factory default settings by pressing the 'reset' button on the backside of the router for at least 10 seconds. e. Set your computer to obtain an IP address automatically (DHCP) and check if your computer gets an IP address. f. If you did a firmware upgrade before the problem started, contact your dealer for help.
Can't get connected to the Internet	a. Go to 'Status' -> 'Internet Connection' menu, and check the Internet connection status. b. Be patient, sometimes the Internet is just that slow. c. Connect a computer directly to the DSL or Cable modem to check if you can access the Internet that way. If you can, check the

	WAN connection settings of the router to make sure they are set up correctly. d. Check the PPPoE / L2TP / PPTP user ID and password again. e. Call your Internet service provider and check if there's something wrong with their service. f. If you just can't connect to one or more Web sites, but you can still use other internet services, check URL/Keyword filter to make sure that you are not trying to access a blocked Web site. g. Restart your modem and the router. h. Reset the device provided by your Internet service provider, too. i. Try to use an IP address instead of a hostname. If you can use an IP address to communicate with a remote server, but can't use a hostname, check the DNS settings.
My wireless notebook cannot see or connect to the wireless network.	a. Check if 'Broadcast ESSID' is set to off? Remember that you have to input the ESSID on your wireless client manually, if the ESSID broadcast is disabled. b. Are all three antennas properly secured? c. Are you too far from your router? Try to get closer.
I can't log onto Web management interface: password is wrong	a. Make sure you're connecting to the correct IP address of the router! b. The Password is case-sensitive. Make sure the 'Caps Lock' light is not illuminated. c. If you really forget the password, do a hardware reset using the reset button on the backside of the router.
Router become hot	a. It is normal for the router to heat up during operation, but this is nothing to worry about. If the router gets too hot to touch, or if you smell something burning or see the smoke coming from the router or A/C

	power adapter, disconnect the router and A/C power adapter from the utility power (make sure it's safe before you're doing this!), and call your dealer for help.
The date and time of all event logs are wrong	a. Adjust the internal clock of the router.

4-3 Glossary

Default Gateway (Router): Every non-router IP device needs to configure a default gateway's IP address. When the device sends out an IP packet, if the destination is not on the same network, the device has to send the packet to its default gateway, which will then send it out toward the destination.

DHCP: Dynamic Host Configuration Protocol. This protocol automatically gives every computer on your home network an IP address.

DNS Server IP Address: DNS stands for Domain Name System, which allows Internet servers to have a domain name (such as www.Broadbandrouter.com) and one or more IP addresses (such as 192.34.45.8). A DNS server keeps a database of Internet servers and their respective domain names and IP addresses, so that when a domain name is requested (as in typing "Broadbandrouter.com" into your Internet browser), the user is sent to the proper IP address. The DNS server IP address used by the computers on your home network is the location of the DNS server your ISP has assigned to you.

DSL Modem: DSL stands for Digital Subscriber Line. A DSL modem uses your existing phone lines to transmit data at high speeds.

Ethernet: A standard for computer networks. Ethernet networks are connected by special cables and hubs, and move data around at up to 10/100 million bits per second (Mbps).

Idle Timeout: Idle Timeout is designed so that after there is no traffic to the Internet for a pre-configured amount of time, the connection will automatically be disconnected.

IP Address and Network (Subnet) Mask: IP stands for Internet Protocol. An IP address consists of a series of four numbers separated by periods, which identifies a single, unique Internet computer host in an IP network. Example: 192.168.2.1. It consists of 2 portions: the IP network address, and the host identifier.

The IP address is a 32-bit binary pattern, which can be represented as four cascaded decimal numbers separated by ".": aaa.aaa.aaa.aaa, where each "aaa" can be anything from 000 to 255, or as four cascaded binary numbers separated by ".": bbbbbbbb.bbbbbbbb.bbbbbbbb.bbbbbbbb, where each "b" can either be 0 or 1.

A network mask is also a 32-bit binary pattern, and consists of consecutive leading 1's followed by consecutive trailing 0's, such as 11111111.11111111.11111111.00000000. Therefore, sometimes a network mask can also be described simply as “x” number of leading 1's.
When both are represented side by side in their binary forms, all bits in the IP address that correspond to 1's in the network mask become part of the IP network address, and the remaining bits correspond to the host ID.

For example, if the IP address for a device is, in its binary form, 11011001.10110000.10010000.00000111, and if its network mask is 11111111.11111111.11110000.00000000 it means the device's network address is 11011001.10110000.10010000.00000000, and its host ID is 00000000.00000000.00000000.00000111. This is a convenient and efficient method for routers to route IP packets to their destination.

ISP Gateway Address: (see ISP for definition). The ISP Gateway Address is an IP address for the Internet router located at the ISP's office.

ISP: Internet Service Provider. An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

LAN: Local Area Network. A LAN is a group of computers and devices connected together in a relatively small area (such as a house or an office). Your home network is considered a LAN.

MAC Address: MAC stands for Media Access Control. A MAC address is the hardware address of a device connected to a network. The MAC address is a unique identifier for a device with an Ethernet interface. It is composed of two parts: 3 bytes of data that corresponds to the Manufacturer ID (unique for each manufacturer), plus 3 bytes that are often used as the product's serial number.

NAT: Network Address Translation. This process allows all of the computers on your home network to use one IP address. Using the broadband router's NAT capability, you can access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

Port: Network Clients (LAN PC) uses port numbers to distinguish one network application/protocol from another. Below is a list of common applications and protocol/port numbers:

Application	Protocol	Port Number
Telnet	TCP	23
FTP	TCP	21
SMTP	TCP	25
POP3	TCP	110
H.323	TCP	1720
SNMP	UCP	161
SNMP Trap	UDP	162
HTTP	TCP	80
PPTP	TCP	1723
PC Anywhere	TCP	5631
PC Anywhere	UDP	5632

PPPoE: Point-to-Point Protocol over Ethernet. Point-to-Point Protocol is a secure data transmission method originally created for dial-up connections; PPPoE is for Ethernet connections. PPPoE relies on two widely accepted standards, Ethernet and the Point-to-Point Protocol. It is a communications protocol for transmitting information over Ethernet between different manufacturers.

Protocol: A protocol is a set of rules for interaction agreed upon between multiple parties so that when they interface with each other based on such a protocol, the interpretation of their behavior is well-defined and can be made objectively, without confusion or misunderstanding.

Router: A router is an intelligent network device that forwards packets between different networks based on network layer address information such as IP addresses.

Subnet Mask: A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers (e.g., 255.255.255.0) configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must be assigned by InterNIC).

TCP/IP, UDP: Transmission Control Protocol/Internet Protocol (TCP/IP) and Unreliable Datagram Protocol (UDP). TCP/IP is the standard protocol for data

transmission over the Internet. Both TCP and UDP are transport layer protocols. TCP performs proper error detection and error recovery, and thus is reliable. UDP, on the other hand, is not reliable. They both run on top of the IP (Internet Protocol), a network layer protocol.

WAN: Wide Area Network. A network that connects computers located in geographically separate areas (e.g., different buildings, cities, countries). The Internet is a wide area network.

Web-based management Graphical User Interface (GUI): Many devices support a graphical user interface that is based on the Web browser. This means the user can use the familiar Netscape or Microsoft Internet Explorer to Control/configure or monitor the device being managed.

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